A CHILTON PUBLICATION

The Iron Age

THE NATIONAL METALWORKING WEEKLY

April 26, 1951

CONTENTS PAGE 2

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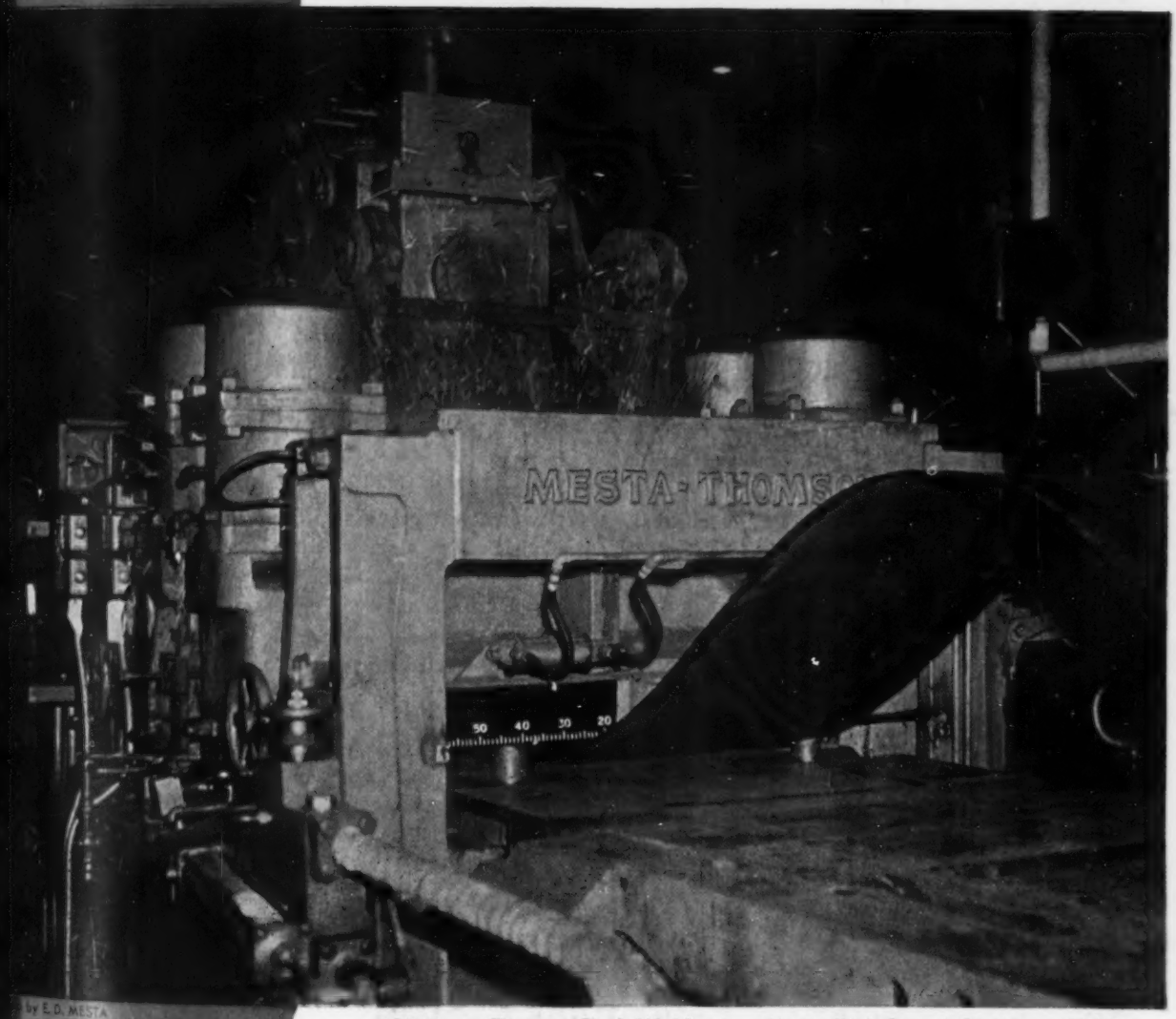
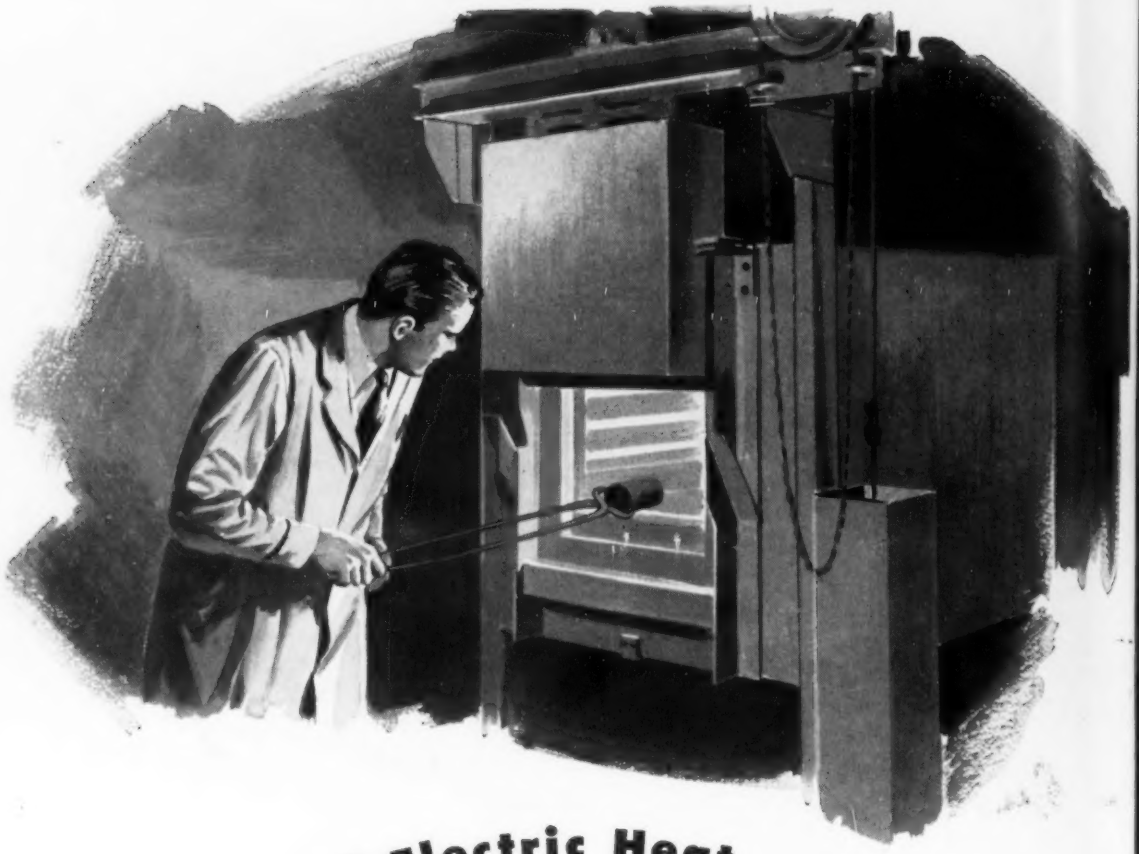
MESTA-THOMSON Flash Welders
for Increased Cold Mill Production



42" Mesta-Thomson Flash Welder in a Mesta High-Speed Continuous Pickling Line installed at the Aliquippa Works of Jones & Laughlin Steel Corporation.

DESIGNERS AND BUILDERS OF COMPLETE STEEL PLANTS

MESTA MACHINE COMPANY · PITTSBURGH, PA.



When you think of Electric Heat

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Long-lasting heating units made of Hoskins Chromel resistance alloy add a big "plus-performance" factor to electric heat treating furnaces. Or any other electrical heating device, for that matter, where long-life dependability is an important first consideration. For Chromel, you know, is the *original* nickel-chromium alloy that *first* made electrical heating practical. It's durable stuff . . . highly resistant to oxidation . . . because, in use, it quickly forms a thin, dense oxide "skin" that doesn't readily flake off with the expansion and contraction caused by intermittent heating and cooling. Instead, this tight protective coating adheres strongly to the basic metal and effectively prevents continued destructive oxidation. It possesses close-to-constant "hot" resistance between 700° and 2000° F., delivers full rated power throughout its long and useful life. And it's backed by a record of over 40 years specialized research and manufacturing experience which represents your best assurance of uniform quality, dependable performance, prompt deliveries, and qualified field application service.

So, whether you're producing electric furnaces and other heating devices . . . or whether you make good use of them in your own manufacturing process . . . you'll do well to specify durable heating units made exclusively of Hoskins Chromel resistance alloy. They're the basic elements for dependable electrical heating.

Our Catalog M-1 contains useful technical information and helpful application data . . . want a copy?

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**the original nickel-chromium resistance alloy that first made electrical heating practical*

Don't Let IRON and STEEL SCRAP Gather Cobwebs!

Somewhere, back in a corner of your plant or shop, there's some scrap iron and steel. Maybe quite a pile, gathering rust. Maybe some obsolete machinery, long unused. Maybe odds and ends that total many tons. You've meant to have it hauled away, but somehow it's still around.

Now's the time to sell it!

Call the nearest scrap dealer; ask him to give you a price. He'll pay good money for it. Prices are high . . . the nation's steel plants need scrap badly. With a stepped-up defense program under way, scrap is more than ever a vital ingredient of steel production. Industry must help take up the slack—*fast*.

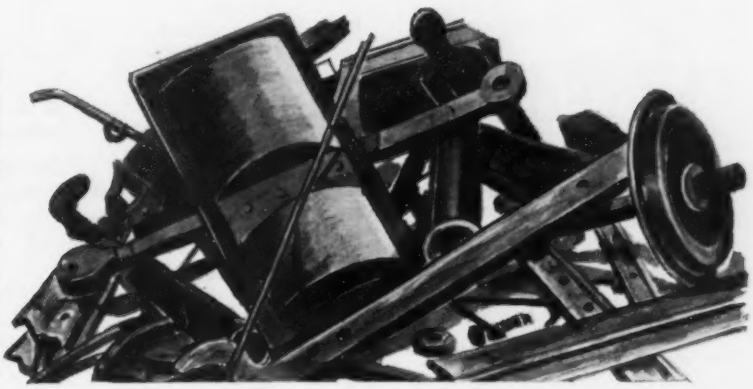
A constant flow of scrap means greater tonnages of iron and steel. It means more finished products made of iron and steel. You can help . . . and help yourself as well. Get that scrap in circulation. Get it on the job!

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

BETHLEHEM STEEL

BETHLEHEM STEEL

If you don't know the name of a scrap dealer, look one up in the yellow classified pages of the telephone directory. You'll find a listing there.



IRON AGE

CONTENTS

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EDITORIAL Paging Mr. Wilson! 7

NEWS INTERPRETATIONS

Newsfront 11
The Iron Age Summary 15
Machine Tool Highspots 31
On the Assembly Line 78
West Coast Progress Report 83
The Federal View 85

REGULAR FEATURES

Dear Editor 22
Fatigue Cracks 26
Dates to Remember 34
Free Publications 36
New Production Ideas 37
Iron Age Introduces 72
Iron Age Salutes 73
Construction Steel News 124
Clearing House 178

TECHNICAL ARTICLES

Palletized, Vertical Storage 87
Side Lifting Truck Stacks Extra-Long Loans 91
Ordnance Awakens Its Sleeping Arsenal 92
New Books 95
Manual Handling Eliminated in Ferroalloy Plant 96
Cost Cut by Materials Positioning at Machine 98
Transfer Press Positions Work at High Speed 99
Magnetic Sheet Separator Improves Production 103
Loads 2 Tons of Pipe Every 17 Sec 104

SPOT NEWS OF INDUSTRY

Rough Sailing Ahead for CMP—Will Open-End Work? 109
Industrial Shorts 110
Electric Furnace Rush Has Its Problems 111
Bits and Briefs 112
Foundry Iron Picture Darkening in East 112
Appliance Makers Push Output to Beat CMP 113
Steel to be Sheltered from Sulphur Crisis 113
Shortage Sinks Peak Fastener Output Hopes 114
Subcontractors: Can You Make It? 115
Controls Digest 116

MARKETS & PRICES

Market Briefs and Bulletins 147
Nonferrous Metals Outlook 148
Iron and Steel Scrap Market 150
Iron and Steel Scrap Prices 152
Comparison of Prices 154
Steel Prices 156
Ferroalloy Prices 164
INDEX OF ADVERTISERS 193

IRON AGE

editorial

Paging Mr. Wilson!

LAST week we asked for industry cooperation to make the Controlled Materials Plan work. We believe defense officials will need all the help they can get from business.

Just as we believe that business must cooperate, so do we think that the government agencies should cooperate. It is a two-way street. It seems they do not always do so, even when the need is spelled out to them.

Tell Berna, manager of the Machine Tool Builders' Assn., is a man of the highest integrity. He has seriously indicted defense officials from the top down. Tell deals in nothing but facts. When he says publicly, as he did at a Westinghouse Machine Tool Forum—and on other occasions—that defense officials refused to see the part machine tools play in defense, then it is time to page Charles Wilson.

It is hard to believe that high defense officials have failed to give the machine tool industry the needed help to speed the defense program.

Yet we have Mr. Berna's words that this is just what they have failed to do. Tell Berna says "we have the ridiculous picture of an essential industry . . . that is tied hand and foot by government policy and given no assistance whatsoever. It cannot borrow money, it cannot write off investment in a period of the defense program if it uses its own money . . . it has no more standing in buying material than the manufacturer of roller skates or baby carriages."

Tell Berna has more to say, "it [the machine tool industry] is given help which it does not want instead of the help that it must have; giving a machine tool builder a pool contract is like handing a drowning man a towel. Finally, it is crippled by making its operations unprofitable so that they cannot be continued."

This is a serious indictment. It is not blue sky talk. It is straight from the shoulder; that is the only way Tell can tell it. What are the defense officials going to do about it?

Now is the time for Mr. Wilson to again take a personal look at the machine tool picture—a good look before the confusion of a new CMP plan again buries the urgency for help to machine tool builders. If the industry is not assisted quickly the defense program is, as Tell Berna says, "merely conversation and dreams."

Now it is up to the boss of the defense program to lend an ear to the machine tool people's problems—and then do something about it.

Tom Campbell

Editor

Here is where L&N instruments can help steel makers...

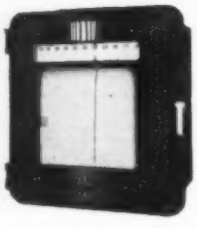
PRODUCERS of iron and steel who are out to make more tonnage and meet closer specs—in spite of material and manpower shortages—will find the instruments and applications shown here exactly tailored to their needs.

Here's why! (1) Hundreds of practical mill men—fuel engineers, first helpers, metallurgists, melters, instrument foremen, superintendents, quality control technicians of all sorts—helped us design these equipments. Our contacts in U.S. Steel, in J&L, Bethlehem, National, Armco, Crucible, Inland, Alan Wood, Granite City, Youngstown, Lukens, Republic and many others have for years used our equipment. Operating qualities, flexibility features and rugged construction are as these men have specified during the 40 years since Midvale bought the steel industry's very first potentiometer pyrometer from us. Yes, L&N instruments are not simply "adapted" to steel mill problems—*they're designed to meet and solve them.*

(2) You can choose from the most complete array of instruments ever available to the steel industry. For each measuring and control problem in the processes shown at right, you'll find an L&N instrument with the qualities needed *for that particular job.* Some are shown below; many are omitted for lack of space.

(3) You get outstanding performance because L&N instruments are *applied* correctly. Into each installation goes the know-how accumulated by men who have spent their entire careers in working with and in the steel industry.

The coupon on the opposite page will bring details of any instrument or application. Because the steel industry is moving so rapidly—is so alert technically—make certain you get the latest specific instrumentation data quickly by identifying the process in which you're interested.

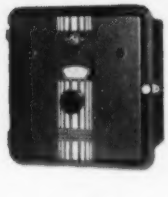


STRIP CHART SPEEDOMAX OR MICROMAX

ROUND CHART MICROMAX

ROUND CHART SPEEDOMAX

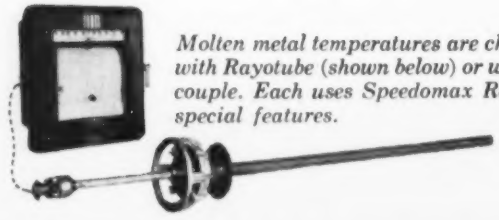
SPEEDOMAX INDICATOR



ELECTROMAX CONTROLLER

SPEEDOMAX PNEUMATIC CONTROLLER

These instruments measure temperature, speed, pH, electric load, flow and most other conditions except combustion and draft (for which see right). Micromax is galvanometer type; Speedomax is electronic. Strip chart instruments can record up to 16 points in up to 6 colors; round chart models are 1- or 2-point. As controllers, either electric or pneumatic systems may be used. Hundreds of standard ranges are available . . . hundreds of special features for special needs.



Molten metal temperatures are checked either with Rayotube (shown below) or with Thermocouple. Each uses Speedomax Recorder with special features.

IRON AGE *summary*

iron and steel industry trends

Metal consumers being misled by Washington statements . . . Analysis of needs shows little left for production of peacetime goods.

Beware Bum Steer—Metal consumers are being misled by statements from Washington on how little steel, aluminum and copper will be needed by the defense program. No matter how true these statements, or how honest the motives prompting them, they paint a false picture of the future availability of basic metals.

What the metal consumer really wants to know is how much metal will be available to him for regular peacetime production. On the basis of information so far available, this can only be figured out by adding metal requirements for defense, special government programs and so-called "essential" civilian uses—then subtracting the total from estimated production. The difference is the total free market metal which will be available for nonessential uses.

Eye-Openers—Applying this formula brings to light some startling results: (1) Within the next 6 months free market steel will shrink to less than 25 pct of total production. (2) Free market virgin aluminum from domestic producers will shrivel to less than 10 pct of total output (this doesn't include imports or secondary aluminum produced from scrap). (3) Free market copper will vanish to less than 25 pct of total supply.

This means manufacturers with no hope of getting metal allocated to them under the Controlled Materials Plan have a tough row to hoe. And that's putting it mildly. If peacetime users aren't restrained they'll trample each other in their stampede for "free" metal. In all probability they face increasingly drastic mandatory restraints to keep their procurement in line with vanishing supplies of "free" metal.

Hollow Hope—It's no wonder metal producers fear official statements from Washington have lulled their customers into expecting more metal for regular peacetime uses than will be available. When the metal isn't forthcoming this could cause a lot of customers to think they aren't getting a fair share. Meanwhile, they will have bled their resources while waiting for a better metal supply.

Copper producers are already urging the National Production Authority to take over complete allocation of copper when CMP starts July 1. Most steel and aluminum people want to continue distributing "free" tonnage themselves—no matter how little is left over after CMP allotments are made.

Shangri-La Ahead — Statements on availability of metals by 1953 are reassuring. By the time present basic metal expansion plans are completed it may well be we can have a guns-plus-butter economy—that we'll be operating on an industrial plane undreamed of a few months ago. But that is still at least 2 years away. And it is looking past many months immediately ahead.

For a good many months policy decisions will be based on how many guns and how much butter. We are a long way from the point where we can have all we want of both—even under limited mobilization.

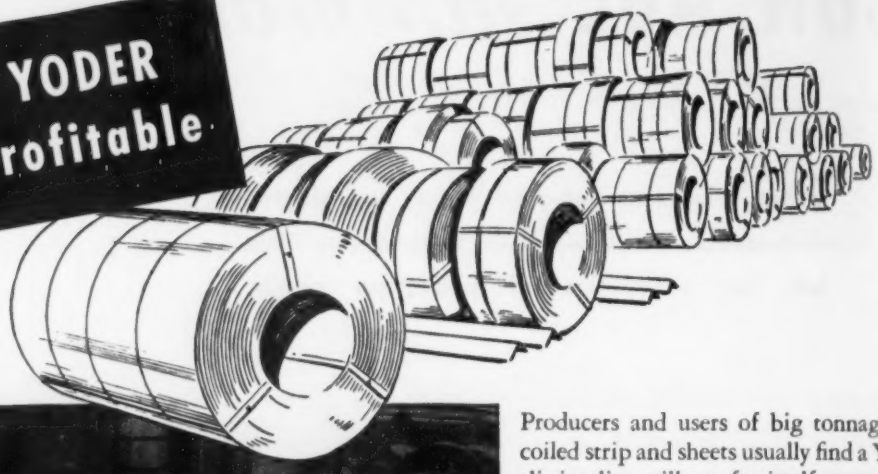
Policy Question—As NPA officials launch the new CMP they'll face more and more pressure for metal. It will come from many directions. And it will complicate their task of deflating requests for metal. Eventually they will have to go to the top for a policy declaration to answer their question. How many guns and how much butter?

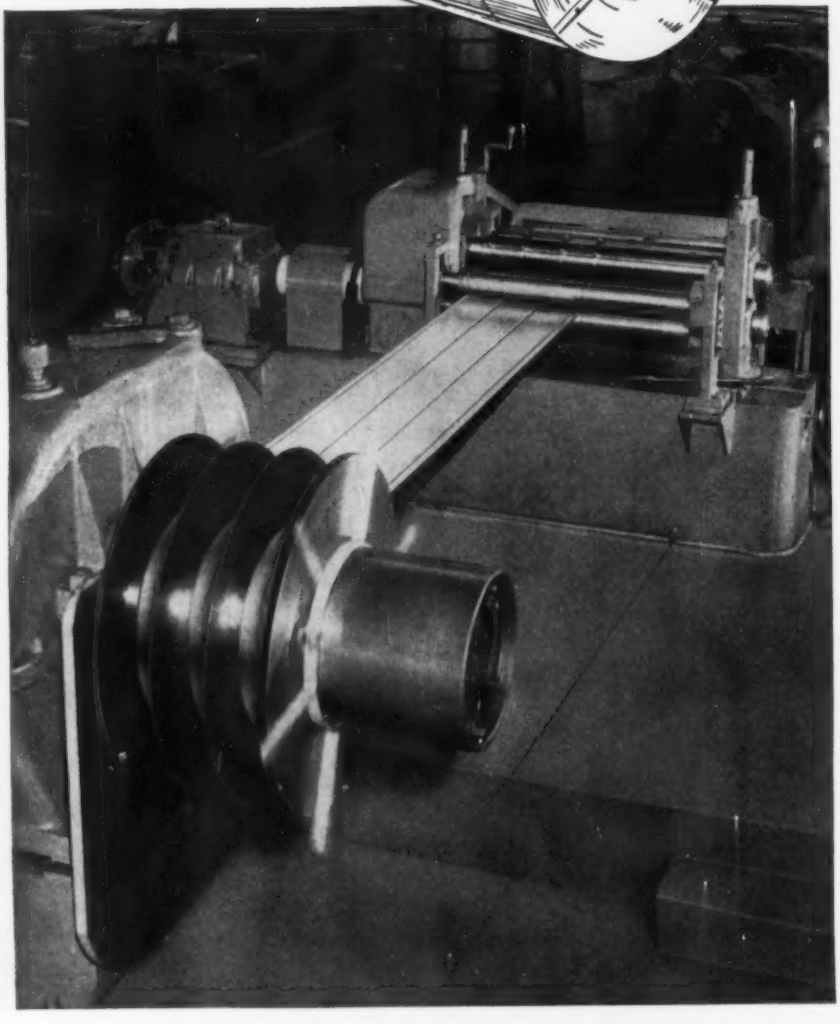
Steelmaking operations this week are scheduled at 103 pct of rated capacity, unchanged from the previous week. Bars continue to be the item in tightest supply. In addition to regular suppliers, consumers are combing foreign sources and mills which reroll rails.

(nonferrous summary, p. 148)

Big Tonnage Not Necessary

To Make YODER Slitters Profitable





Producers and users of big tonnages of coiled strip and sheets usually find a Yoder slitting line will pay for itself every three or four months. Fabricating shops using moderate tonnages often find the slitter pays for itself in a year or less, operating only one or two days per week.

The difference between the cost of standard widths and slit-to-width coil stock varies all the the way from $10.00 up to $100.00 or more per ton, depending on width of strands, gauges and quantities. Even on annual requirements of less than 1000 tons, doing your own slitting may, therefore, pay very handsome dividends on the slitter investment. Equally important is the *convenience* of having your own slitter. Production planning is simplified and strip inventories may be reduced 50% or more by buying mill-edge stock in the required gauges, slitting it yourself to required widths when and as needed.

Yoder Uncoilers, Slitters and Recoilers have been standardized in a large number of sizes and capacities, from the smallest up. Investigate the economies of doing your own slitting with a Yoder line made up of units best suited to your requirements. Send for 76-page Yoder Slitter Book. It answers many questions as to choice of slitting units, production, first cost and operating cost.

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Complete Production Lines

- ★ COLD-ROLL-FORMING and auxiliary machinery
- ★ GANG SLITTING LINES for Coils and Sheets
- ★ PIPE and TUBE MILLS–cold forming and welding

ENGINEERING YODER MANUFACTURING

machine tool high spots

sales inquiries and production

by W.A.Lloyd

A Pct of What Price?—Rejection of pool order contracts was believed to be under consideration this week by a number of machine tool companies. Chief reason is price. Companies are reluctant to sign a firm contract with the government for machines at 82½ pct of the established price when they are not certain what the established price will be.

A second and less obvious reason is that the pool orders are 6 months too late. Last fall, the industry was in a position to quote and needed the general priority for materials which accompanied the pool orders.

Cash is Needed — Today, CMP will take care of the industry's material procurement problems and the need is for cash. No cash advance accompanies the new pool orders. In World War II, builders were given a 25 pct cash advance.

Industry observers expect this situation to straighten out sooner or later. According to latest report, OPS was expected to issue a general manufacturers' order Apr. 24, which would be followed by a machinery order and finally, a machine tool order.

Highest in March — Shipments of machine tools in March are believed to be the highest since 1945. Preliminary reports indicate a 20 pct increase in March shipments over February. New order volume is expected to be off slightly from the February level, which reached an index of 615.

Cancellations were up, possibly as the result of some over-ordering. Ratio of unfilled orders to shipments also increased.

Plane Parts Plant—In Detroit, plans for the erection of a 175,000 sq ft plant at Lima, Ohio, for the production of aircraft engine components were announced by Phil Huber, newly elected board chairman of Ex-Cell-O Corp. Mr. Huber told stockholders that the new plant is scheduled for completion next Fall.

Anticipating Demand—In Cleveland, Lees-Bradner Co. has placed an $890,000 contract for 150 of its thread milling machines with National Tool Co. Shipments will start early in the third quarter. J. A. Bradner, president of Lees-Bradner, said the order is in "anticipation of a growing demand for these machines." The Model 40 will be available for delivery, Mr. Bradner emphasized.

Out of Storage—Machine tools are being taken from the Emergency Production Reserve Depots at Omaha, Neb., and Marietta, Ga., at a terrific clip. Some observers believe that more machines are being taken out of this reserve that the industry is shipping.

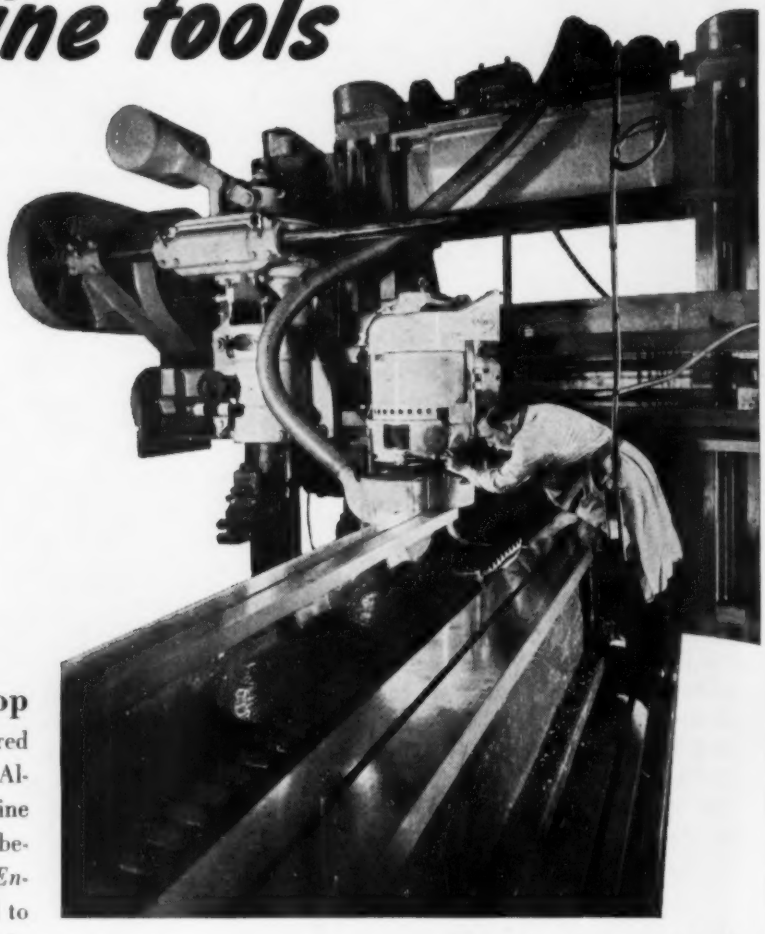
Rebuilders are loaded with these machines and are being offered more rebuilding work than manpower and facilities can possibly handle. Many of the EPR machines are in poor condition and in need of major overhaul as a result of improper preparation for storage during the final wild and woolly days of War Assets Administration.

Slight Exaggeration — One machine tool company received the report that 180 of its machines, brand-new, were in storage at a Utah warehouse. Upon investigation, it was found that the machines were anything but new and the number was closer to 18. Things were scaled down to reality.

Orders from Abroad — Outlook for a machine tool buyer without a DO rating took a turn for the worse last week when major producers reported receipt of a large number of ratings for British and Canadian machines. It is estimated that more than 400 machines have been rated for the British alone.

These machines fall into the 30 pct category reserved for foreign, and essential civilian users, and thus do not compete with U. S. defense requirements.

How Simmons can rebuild your large machine tools



An Important Factor in Simmons Rebuilding is this specially designed planer-type grinder. Accommodating castings 74" wide, 72" high and up to 40' long, it grinds angles...also planes and mills... finishes a large lathe or planer bed in a few hours.

This surface grinder is only one stop along the line to a new lease on life for tired machine tools in a unique rebuilding clinic in Albany, New York. Here, at the Simmons Machine Tool Corporation, specialized techniques go far beyond conventional repair methods. Through *Engineered Rebuilding*, tools are not only restored to maximum efficiency, but new utility is often built in beyond original capacity.

Follow this practice of leading metal-working manufacturers in getting ready for the dual requirements of defense and consumer production:

1. **Take a *physical* inventory of your machine tools, particularly the heavy, hard-to-replace ones.**
2. **Select those in need of rebuilding or modernizing that can be spared temporarily from production.**
3. **Call on Simmons to see the program through by *Engineered Rebuilding* in the world's largest, best-equipped plant.**

Your maintenance engineers or work managers will find working with Simmons' engineers helpful in determining what improvements are required in your machine tools—hydraulic drive, conversion to motor drive and application of power rapid traverse, lengthening of beds or tables, widening of housings, raising of rails or heads, new type surface finishes such as hardened steel ways or labor-saving devices.

Add *Engineered Rebuilding* to your "Get-Ready" program. You can start by sending us a list of your machines that require rebuilding. We'll promptly quote prices and deliveries and send you case examples of machine tools rebuilt "The Simmons Way."

SIMMONS MACHINE TOOL CORPORATION
1721 N. Broadway, Albany 1, New York

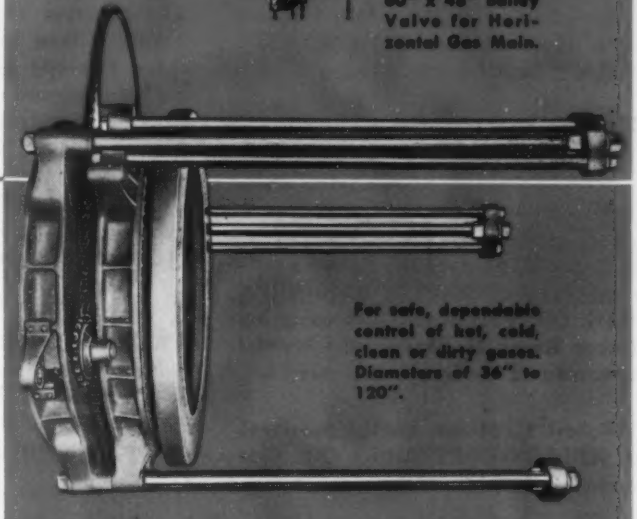
SIMMONS ENGINEERED REBUILDING
Gives Machine Tools a New Lease on Life

These dependable Bailey PRODUCTS contribute to STEEL MILL SAFETY

60" x 48" Bailey Valve for Horizontal Gas Main.

Bailey MECHANICAL VALVES

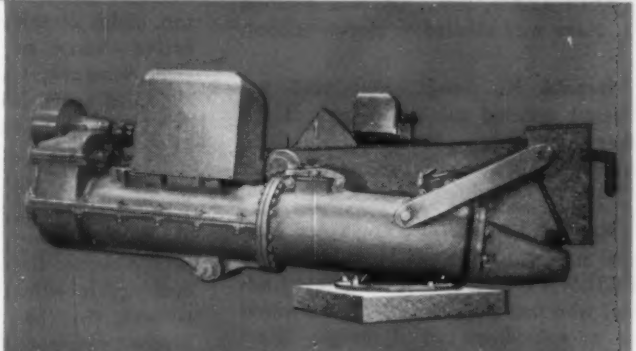
Noted for their dependable operation under all conditions, Bailey Mechanical Goggle Valves provide a tight, positive seal for shutting off gas mains in emergencies or for repairs. Requiring a minimum of maintenance, they operate by a powerful clamping force which is applied equally at all points around the disc periphery. Regardless of time between operations, they open or close instantly. Sizes from 6" to 72", totally enclosed if desired.



For safe, dependable control of hot, cold, clean or dirty gases. Diameters of 36" to 120".

Bailey THERMAL VALVES

Operated by the lineal expansion and contraction of three sets of tubes spaced around a rigid steel flange, the Bailey Thermal Valve is always safe, dependable and *ready*. When steam is passed through the tubes, thermal expansion creates a powerful force that instantly frees the goggle plate and permits valve operation. When the steam is removed, contraction closes the flanges against the plate, forming a tight seal. Can be operated by hand in case of steam failure.



This gun will stop the tapping hole with full wind on the furnace. Clay pressure 600 lb./sq. in.

Bailey CLAY GUN

Powerful electric drive provides the piston pressure necessary to maintain long and uniform tapping holes. Special Bailey Lever Action forces the nose of the gun into position with positive accuracy. Piston is driven by an electric motor through reducing gears. The Bailey Clay Gun is dependable and safe.

WILLIAM M. Bailey COMPANY
ENGINEERS
LEADERSHIP THROUGH QUALITY

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IRON AGE *introduces*

Ralph Henderson Everett, elected a director for a term of three years, of AUTOMATIC STEEL PRODUCTS, INC., Canton, Ohio.

John L. "Jack" Warner, appointed superintendent of the South Chicago coke plant of the YOUNGSTOWN SHEET & TUBE CO.

George W. Marshall, Jr., and **Alvin F. Heinsohn,** elected vice-presidents of RAYBESTOS - MANHATTAN, INC., Passaic, N. J.

Henry D. Sharpe, Jr., elected president of the BROWN & SHARPE MFG. CO., Providence, succeeding his father **Henry D. Sharpe** who became chairman of the board of directors.

Robert C. Millar, elected president of KELLEY-KOETT MFG. CO., Cincinnati.

Sidney S. Minault, elected vice-president and general manager of TRACERLAB, INC., Boston. **William A. Kerr** was elected a vice-president.

Donald N. Arndt, appointed assistant general sales manager of the Marvel-Schebler Products Div., BORG-WARNER CORP., Chicago.

Raymond N. Wilson, appointed general manager of RIVER TERMINAL RAILWAY CO., succeeding **Bert Ladley,** who has resigned. River Terminal is a subsidiary of Republic Steel Corp., Cleveland.

William B. Kennedy, named as division superintendent in charge of blast furnaces, openhearth furnaces, Bessemer converters, and rilling mills at National Works of NATIONAL TUBE CO., McKeesport, Pa.

Frank A. Cramp and **Forrester W. Leslie,** elected to the board of directors of A. C. LESLIE & CO., LTD., Montreal.

J. W. Alexander, appointed general sales manager of KAISER-FRAZER CORP., Willow Run, Mich. Mr. Alexander succeeds **E. N. Rickert,** who has been named assistant works manager in the automotive division.

Andrew A. Kucher, appointed director of FORD MOTOR CO's scientific laboratory, Dearborn. **A. C. Moore** was appointed general manager of the tank division.

W. H. DeBruin, promoted as resident contact engineer for the GOODYEAR TIRE & RUBBER CO., Detroit. Replacing Mr. DeBruin in farm tire development at Akron is **T. J. Thaden.**

E. H. Conner, placed temporarily in charge of the management of the PEDEN IRON & STEEL CO., Houston. **John Peebles,** who has been in active charge as president and general manager, has been granted an extended leave of absence.

Howard Holt, joined the technical service department of the ATLAS MINERAL PRODUCTS CO., Mertztown, Pa. Other changes in personnel: **George Gabriel** becomes engineering coordinator and **Gerald F. Gilbert, Jr.,** has been promoted to product director in charge of chemical resistant cements.

J. Douglas Dawson, appointed general traffic manager of the NORTON CO., Worcester, succeeding **Elmer B. Jones** who retires at the end of this month after 22 years of service.

Turn to Page 74

L. W. MERCER, elected executive vice-president of the Square D Co., Detroit.

JAMES W. ANDERSON, elected vice-president-sales of Whitney Chain Co., Hartford, Conn.

DONALD D. TOMKINSON, named executive vice-president, Doco Machine & Tool Co., Brooklyn.

IRON AGE *salutes*

Emil Gairing

EMIL GAIRING has resisted all attempts to chain him to a desk. His energy demands action. It has to be expended.

He's first and foremost an organization man. By delegating responsibility to others, he finds time to do what he likes best—make calls on his customers. His "front line" operating tactics are particularly appreciated during these times. His customers know he's interested in their problems because he gives them his personal attention.

His talent for organization isn't confined to his own company. For the second time the Cutting Tool Manufacturers Assn. has elected him its president. The honor is well deserved.

During his active business career he has found time to (1) Take out 33 patents on various types of cuttings tools, (2) introduce the interchangeable counterbore to the cutting trade, (3) organize three companies to make the tools he invented, (4) carry a large share of responsibility for his industry—cutting tool manufacturers.

At 19, he was tool room foreman of Royal Motor Co. In 1911 he organized Eclipse Interchangeable Counterbore Co. Six years later he sold his interest in Eclipse to establish Gairing and Needham Co. which made core drills and other tools. Later he bought out his partner to form Gairing Tool Co. which he now heads. His firm specialized in designing tools used on highly intricate machine tools needed for defense work.

His hobbies have included golf and photography. His latest diversion is his new home in which he designed many features, including all-sliding doors.

JOHN H. DAUM, joined Harrington-Wilson-Brown Co., New York, as a general partner and sales manager.

RODNEY C. GOTT, named a vice-president of American Machine & Foundry Co., New York.

C. W. BLISS, elected treasurer of the Warner & Swasey Co., Cleveland.

WILLIAM HOWLETT, elected president of Nesco, Inc., Chicago.

IRON AGE *introduces*

Continued

Thomas H. Way, named to the chemical department's manufacturing division staff at Pittsfield, Mass., of GENERAL ELECTRIC CO. **G. S. Berge** will succeed Mr. Way as manager of the Taunton plant. **Howard H. Hardesty** has been appointed district auditor for the company's Mid-States Apparatus district.

Richard E. Stiegele, promoted as sales manager, Eastern tractor equipment sales division, of the HYSTER CO., Portland, Ore.

B. E. McArthur, appointed as chief engineer of MAGNETHERMIC CORP., Youngstown.

J. C. L. Brown appointed sales manager, machinery division of the GARDNER MACHINE CO., Beloit, Wis.

Paul B. Shoemaker, named vice-president in charge of sales for MASONITE CORP., Chicago.

T. A. Nilsen, appointed district manager of the new Texas office of the DE LAVAL STEAM TURBINE CO., Houston.

Milton G. McInnes, elected vice-president for operations and maintenance of the ERIE RAILROAD, Cleveland.

James H. Binger, elected to the board of directors of DIAMOND IRON WORKS, INC., Minneapolis. Others elected to the board: **Melvin J. Carlson** and **George E. Erickson.**

Herbert H. Pease, retired as president, but will continue as chairman of the board of directors of the NEW BRITAIN MACHINE CO., New Britain, Conn. **Robert T. Frisbie** was elected president, **Ralph S. Howe,** elected executive vice-president, **Julian C. Pease,** elected a vice-president and a director and **William J. Lofgren** was elected secretary and treasurer.

Elmer H. Moss, named advertising manager for the HOLLAND FURNACE CO., Holland, Mich.

Robert Fulton, appointed plant manager of the plastic metals division of the NATIONAL RADIATOR CO., Johnstown Pa.

Norman A. Strang, appointed advertising manager of SKF INDUSTRIES, INC., Philadelphia.

Eugene G. Sheasby, appointed assistant general sales manager of FORT DUQUESNE STEEL CO., Pittsburgh.

J. T. O'Brien, appointed works manager of the steel division of the FIRTH STERLING STEEL & CARBIDE CORP., McKeesport, Pa. Other appointments: **T. F. Nakles** was appointed superintendent of maintenance, **T. G. Barnes** was made production manager, and **W. P. Nolan** was appointed chief engineer.

Edward K. Foster, elected a vice-president and member of the administration committee of BENDIX AVIATION CORP. Mr. Foster will continue as general manager of the radio communications division, Baltimore.

Donald MacArthur, appointed assistant manager of the sales department, Central staff of KOPPERS CO., INC., Pittsburgh.

W. M. Nickerson, appointed as credit manager, Houston office of the Federated Metals Div., of AMERICAN SMELTING & REFINING CO.

Arnold Helgeson, appointed to direct the activities of the foundry division of ROSAN, INC., South Gate, Calif.

Phil Huber, elected chairman of the board of directors of EX-CELL-O CORP., Detroit. **H. Glenn Bixby** succeeds Mr. Huber as president and general manager and **James K. Fulks** was elected to the newly created office of executive vice-president.

Richard H. Reiber, appointed assistant manager, Pittsburgh district of U. S. STEEL SUPPLY CO.

OBITUARIES

S. Duncan Black, 67, president of Black & Decker, Baltimore.

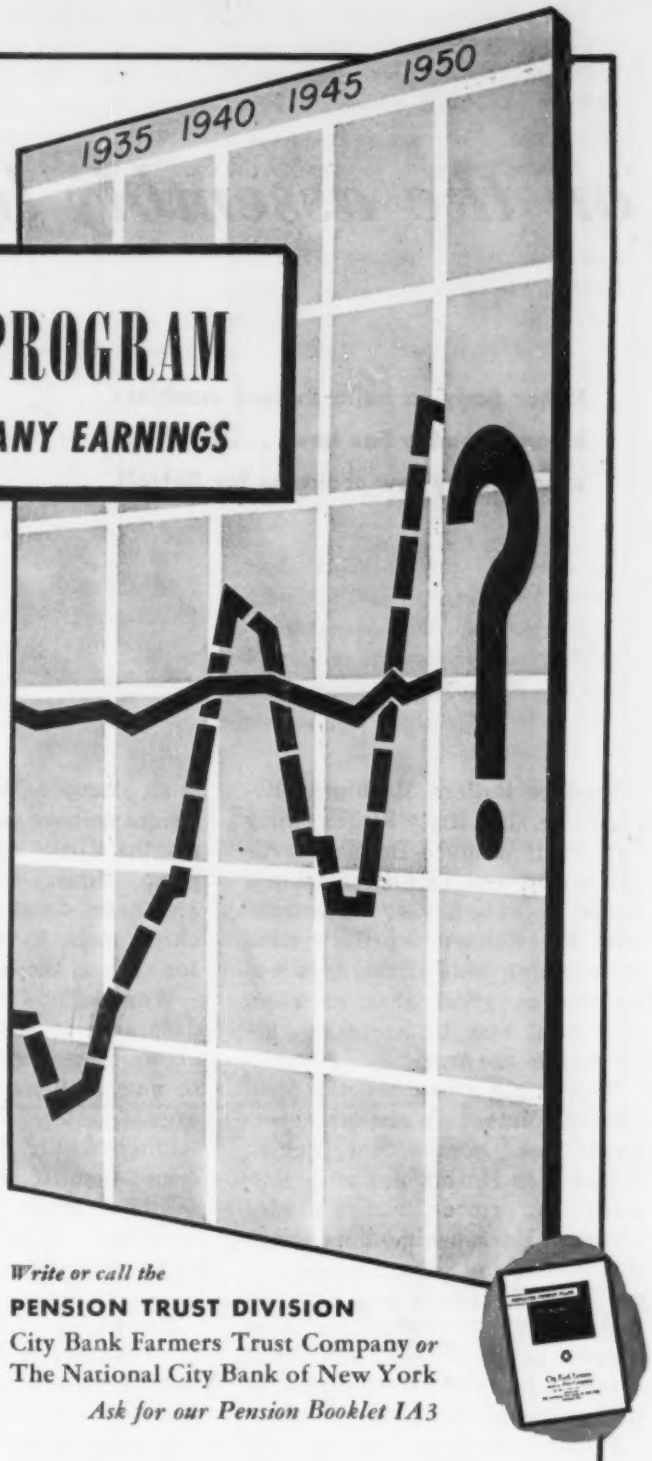
John E. Doran, 57, vice-president in charge of sales of the G. A. Gray Co., Cincinnati. Mr. Doran had joined the company in 1927.

William A. Rose, 70, who retired in 1945 as president of the Bassick Co., Bridgeport Conn., at his home in Easton, Conn.

Patterns in Pensions

YOUR RETIREMENT PROGRAM

SHOULD BE GEARED TO YOUR COMPANY EARNINGS



IF your company

EARNINGS ARE STEADY

Your company probably can afford the permanent commitment of an adequate pension system.

IF your company

EARNINGS ARE ERRATIC

Your company probably can best solve the retirement problem through a deferred profit-sharing trust—or a combination of a modest fixed pension commitment plus a profit-sharing retirement plan.

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on the assembly line

automotive news and opinions

Fisher Body to build Bullard machines on an assembly line basis . . . CMP will create many new problems for Detroit.

by Walter G. Patton

Produce Bullard Machines—Reports persist that Fisher Body Corp. will produce Bullard vertical boring and turning machines under a subcontract agreement with the Bullard Co. GM's need for machine tools of this type has become so great that such an agreement may be necessary, according to the trade.

This is not a new practice with General Motors. A similar agreement was worked out during World War II (but not with Bullard) to provide badly needed planers. Most available information is indefinite but indications are that production may start as early as July 15. Production rates cannot be confirmed but could reach 50 machines per month, the trade guesses.

Bullard machines which will rough turn, semi-finish or finish turn a variety of shapes are well adapted to defense production needs. Washington, it is reported, wants such a setup but there are a lot of obstacles to any such arrangement, according to informed sources.

CMP vs. Tooling—Recent announcement of the Controlled Materials Plan poses a series of tough problems for the automobile industry. Tooling for new engines is an example. Most of the tooling programs have been under way for months. (IRON AGE, Apr. 19, 1951, p. 72.) Some, DeSoto, for example, are near completion. Some machine tools have been delivered for each of the new engines.

What will be the status of these programs if CMP puts a tight clamp on materials like steel? Up to now, tool manufacturers have argued successfully that auto tooling should be pushed on to completion. If materials are not available after July 1, programs involving millions of dollars may be brought to an abrupt halt.

Incomplete Tools—The history of Washington edicts is they are usually eased after being announced but there is no present indication of any leniency for machine tool builders. If steel deliveries are stopped, the auto companies will be invoiced for work performed to date. The incomplete tools will then be warehoused or delivered, according to orders issued by the purchaser.

Slower Production—Another big question has been raised by CMP: The new tools have all been designed for top production. If available materials are seriously cut—as most observers now agree—the new machines will be forced to operate far below contemplated production rates. A slash of 50 pct or more output could occur before the fourth quarter.

Production cutbacks is one of the bugaboos which face every automobile factory master mechanic. Costs will soar rapidly if production drops off suddenly. This is a problem the auto builders have never faced during the entire postwar period. It is also the basis for recent requests for price increases by the industry.

Price Problems — Uncertainty created by price controls and materials regulations is illustrated further by new practices adopted by some machine tool suppliers. On standard machines, for example, some new contracts call for negotiations of a mutually satisfactory price 4 months prior to actual delivery. Both the buyer and the seller may cancel without penalty.

Threat of a rollback of machine tool prices (while labor costs and some basic materials remain at peak levels) is responsible for this unusual pricing practice. Deliveries of many standard tools are already far behind; many items are not being promised for 6 months or longer.

assembly line

Continued

Chrysler Car Wins—Last week's SAE sponsored race of jet propelled miniature cars before the season's largest group of automobile engineers was a thrilling spectacle. Speeds were purposely cut for this contest. Even so, the Chrysler entry sped across the room at a rate of more than 50 mph propelled only by gas escaping from its CO^2 cartridge.

K-F Drops Second Shift—Kaiser-Frazer is not the only automobile producer having steel trouble. Flat-rolled steel is still a problem to all producers. However, sheet steel, at the moment, is in better supply in most plants than carbon or alloy bar steels.

Last week Kaiser-Frazer announced it was eliminating its second shift of workers, and reducing employment about 25 pct. Total number of workers affected is nearly 3000.

Shortages of leaf springs and copper for radiators was responsible for the production cut, K-F officials said. K-F denies the cut was influenced by slow sales of its products. Early in the week, K-F was attempting to line up additional spring steel. The company also said the layoffs will help speed conversion of a third of the Willow Run plant for the manufacture of Fairchild cargo airplanes.

Foundry Substitutes—A shortage of molybdenum, nickel and other alloying elements has sent foundry superintendents scurrying for substitutes. Last week it was reported a large auto firm had acquired a supply of tungsten high speed steel grindings both from its own shop and from outside sources. The grindings are being melted down in an electric furnace and aluminum oxide and other impurities are fluxed out.

By substituting tungsten for approximately half of the molybdenum content, satisfactory camshafts are being produced without any sacrifice in quality or strength. It is reliably reported other auto firms may have to resort to similar practices to maintain necessary alloy content of some of their castings. The usual alloy additions to many Detroit die irons have already been eliminated.

Sampling of Trouble—Washington planners who would like an advanced blueprint of some of the problems they will be getting into need only read some statistics compiled by the Detroit Board of Commerce. The latest B of C survey shows 827 metal fabricating, stamping, tool and wire plants are located in the Detroit area. The job of supervising and processing the material needs of such plants all over the country is fantastic in scope.

Pontiac Cannon Contract—Pontiac Motors has been awarded a contract to produce medium calibre cannons. The contract is valued at $57 million. Several weeks ago Pontiac announced other contracts for the production of amphibious cargo carriers and a large number of Army rockets. Pontiac defense projects to date aggregate more than $114 million.

Approximately 1800 processing operations will be performed on the guns at Pontiac, according to Arnold Lenz, Pontiac general manager. About 1250 machine tools will be required. The cannon project is expected to employ approximately 3000 workers. As many as 500 subcontractors will be needed in addition to 500 Pontiac parts and assemblies to furnish the 1190 parts and assemblies required under the contract.

Still More Power—Pacific Gas & Electric Co., serving 48 counties in California, has announced an $86 million expansion program to be completed in 1954 which will add about a half million kw of steam-generated electric capacity to its system.

Locations of the new generating plants have not been determined. When completed P. G. & E. will have added 2,306,000 kw to the 1,728,000 kw generating capacity it had at the end of the last war.

THE BULL OF THE WOODS — **By J. R. Williams**

♪ ONWARD, 'TIS OUR COUNTRY NEEDS US--♫ HE IS BRAVEST, HE WHO LEADS US-- STRIKE FOR 'OME, FOR LIFE AND GLORY--♪♫"
MINDS ME OF TH' OLD DAYS--THE SHOP WAS FULL OF WELSH-MEN AN' THEY'RE A GREAT SINGIN' RACE, AN' AT LUNCH HOUR ON TH' NIGHT SHIFT THEY HAD EVEN TH' IRISH AN' GER-MANS SINGIN' WELSH SONGS!
I'LL BET THEY GAG NOW, AFTER A LIFETIME ON TH' BENT END OF A FOUR-FOOT WRENCH, TO THINK OF TH' REAL DOUGH THAT'S BEIN' PAID NOW FOR SOME AWFUL SQUAWKIN'!
4-27
J.R.WILLIAMS
T. M. REG. U. S. PAT. OFF.
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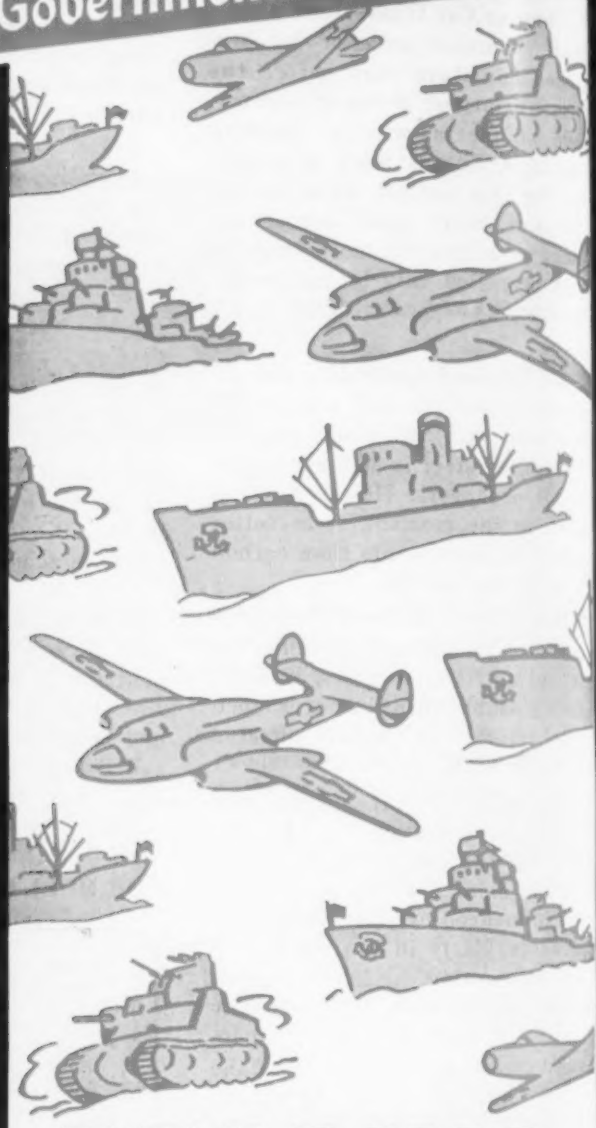

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Producers of READING LEKTRONEAL COPPER TUBING

west coast progress report

digest of far west industrial activity

by R.T.Reinhardt

Ghost May Rise — Aluminum may once again be produced at the cannibalized government owned reduction plant at Riverbank, Calif. This $12 million plant was built by Alcoa for the government during the last war and with three pot lines had a capacity of 500 tons of aluminum annually. Late last year all reduction facilities were sold.

Now Harvey Machine Co. of Los Angeles, which already has announced construction of an aluminum reduction plant at Kalispell, Mont., is negotiating for purchase or lease of the plant and is said to be contemplating purchase of one pot line from abroad. About a year ago the company entered a bid for the plant which was rejected by the government.

Two hurdles have to be overcome to get the Riverbank plant into production: high power costs (about 6.5 mills per kwh against the 2.5 mills Pacific Northwest producers pay Bonneville Power Administration) and strong opposition from farmers in the neighborhood of the plant who fear effects of waste fumes. The former may be jumped by government subsidy and the latter by installation of adequate control devices.

Most Critical Metal—Dr. James Boyd, director of the U. S. Bureau of Mines and Administrator of the Defense Minerals Administration, last week told western mining men that tungsten was probably the most critical metal today. Pointing to its need in machine tools and that a serious deficit could cut overall production 90 pct, Dr. Boyd stated all-out assistance in developing domestic deposits was being given.

He cited establishment of a floor price of $63 per ton by the government as being the most important step yet taken to insure full development of all domestic deposits. California prospectors are avidly seeking the metal in the southern part of the state and meeting with marked success by using black light and working at night.

One Down—Two to Go—Reports of U. S. Bureau of Mines engineers who inspected properties in Lake County, Calif., supposed to contain part of the iron ore deposits on which the Yolo Steel & Metal Co. based its plans for a $264 million steel plant indicate only iron-stained rock.

The investigating engineer found only about 300 tons of ore exposed in trenching and reported there was no commercial ore. Other deposits claimed by Yolo Steel in Lassen and Plumas Counties are to be inspected by Bureau engineers as soon as weather conditions permit.

Ore Faces Higher Tax—Utah's state tax commission is beginning to eye the iron ore mining industry as a possible source of additional revenue. It will seek a new basic property and mine occupation tax system to increase the take from iron mines by "several thousand dollars."

At present a 1 pct occupation tax applies to the value of the ore as determined by selling price. That value is now fixed at $1.55 per ton. The commission has in mind a "work back" system whereby the value of the ore would be determined by the price of pig iron after all transportation and production costs have been deducted. Such a change would also affect the industry's property tax, as valuation is determined on a basis of net proceeds.

Big Copper Plans — Kennecott Copper Corp. will spend $14 million to develop a copper mine near Ruth, Nev. A 1700-ft shaft is to be sunk for removal of an estimated 42.5 million tons of 0.03 pct copper ore. About $7 million will be spent on the shaft and eight miles of subterranean haulage ways. It is estimated the project will be completed in 12 years.

Spreading Out—C. F. Braun & Co., Alhambra, Calif., has plans for a $2 million expansion program including installation of a new power distribution system, extensive retooling and sand blasting facilities. The company is one of the foremost research, engineering, and builders of refinerys and industrial works in the West.

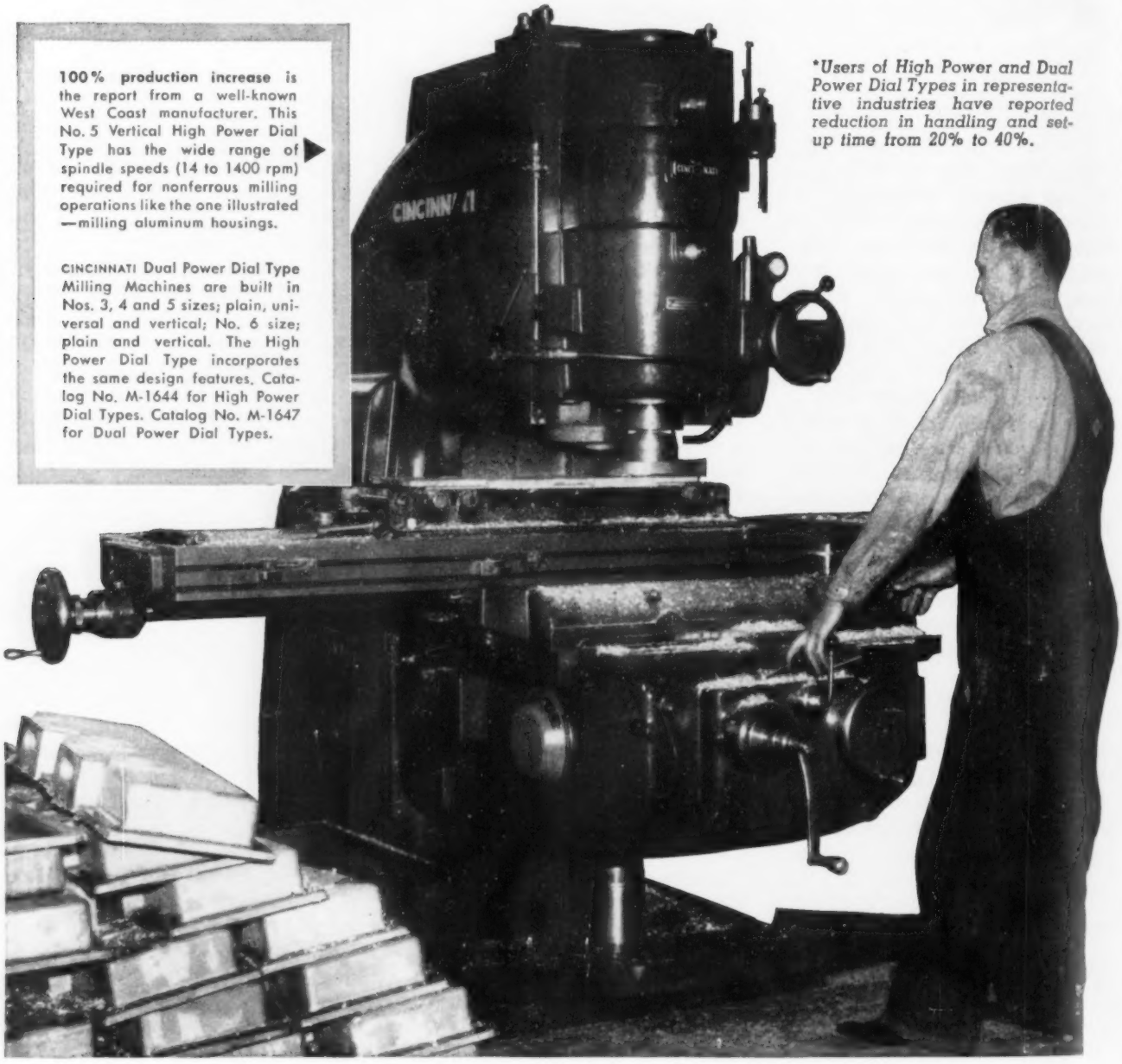
HANDLING and SET-UP TIME ⅓ OFF

Handling time is an expensive item in metal working shops. Many shopmen say handling and set-up time together represent the biggest cost element of parts machined on general-purpose equipment. For heavy milling operations, the best machines to reduce these individual elements of cost in your shop are CINCINNATI High Power and Dual Power Dial Types. They have reduced handling and set-up time an average of ⅓*, as compared to older model knee-type machines. ¶ But that's not the only advantage offered by these heavy duty CINCINNATIS. Power has been stepped up as much as 2½ times the old models; heavier cuts can be taken; Dynapoise overarm eliminates self-excited chatter; automatic backlash eliminator (a standard feature) expands the variety of operations to include down-milling. ¶ You may obtain more information about the heavy duty knee-type line by writing for catalogs.

THE CINCINNATI MILLING MACHINE CO., CINCINNATI 9, OHIO

100% production increase is the report from a well-known West Coast manufacturer. This No. 5 Vertical High Power Dial Type has the wide range of spindle speeds (14 to 1400 rpm) required for nonferrous milling operations like the one illustrated —milling aluminum housings. ▶

CINCINNATI Dual Power Dial Type Milling Machines are built in Nos. 3, 4 and 5 sizes; plain, universal and vertical; No. 6 size; plain and vertical. The High Power Dial Type incorporates the same design features. Catalog No. M-1644 for High Power Dial Types. Catalog No. M-1647 for Dual Power Dial Types.



**Users of High Power and Dual Power Dial Types in representative industries have reported reduction in handling and set-up time from 20% to 40%.*

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BROACHING MACHINES • FLAME HARDENING MACHINES
OPTICAL PROJECTION PROFILE GRINDERS • CUTTING FLUID

CINCINNATI

the federal view

this week in washington

by Eugene J. Hardy

Compliance Drive — The National Production Authority has far too small a staff to even attempt thoroughly policing industry to get full compliance with its many orders and regulations. It will never be able to do so and as a result, it has taken a leaf from the book of the Internal Revenue Bureau.

It makes spot checks. Already at least two industries have been so checked. And shortly a more intensive checking will begin, using mainly Federal Trade Commission personnel which have been placed at the NPA's disposal. About 25 firms — big, little, and medium-sized and by geographical location —will be selected in each field affected for checkup.

Tax Changes Urged—Preoccupation with the task of unearthing new sources of Federal revenue is blocking — at least temporarily — proposals to rewrite the renegotiation and fast-amortization laws.

A small but determined group of House tax-writers, headed by Rep. Eberharter, D., Pa., is pressing for enactment of a bill (H.R. 3733) to disallow fast amortization in estimating costs under renegotiation.

Tax Deferment—Under the present write-off schedules, Eberharter says, steel companies "are getting, as a minimum, a large interest-free tax deferment, and as a maximum, the difference in value between the deduction at present high tax rates and the same deduction at future lower tax rates."

"If the same write-off is allowed as a cost before recapture of excessive profits—and even worse, as is now being proposed, as a cost in the setting of defense contract prices—the subsidy will be doubled and redoubled far beyond anything justified by the requirements of the defense effort," he told the House.

Better Planning Needed—Pentagon procurement officials are being urged to make more advantageous use of "open-end" contracts.

A House committee reporting its study of government buying habits says the primary difficulty in connection with the present usage of "open-end" contracts is that the contractor is not given sufficiently definite information as to the needs of the government to permit the quoting of advantageous prices.

Contractors, so they reason, are reluctant to quote prices figured on a large-quantity basis unless the government obligates itself to order at least an approximate amount of the items quoted.

Small Business Clinics — To speed up production by subcontractors, the U. S. Air Forces are scheduling "clinics" in at least five major cities. The purpose of the get-togethers, says the AF, is not only to explain what is needed by the prime contractors who hold the defense contract but to help small business get in on those subcontracts.

First of the clinics is scheduled for Chicago on Apr. 30. Dates will be announced for Boston, Detroit, Los Angeles, and Fort Worth.

Flying Bulldozers—It is not unlikely that the Point 4 program may have some bearing on future designs of heavy power and industrial equipment. Many foreign areas to be developed, especially in South America, are now accessible only by air or water (rivers). Already Civil Aeronautics Administration officials are suggesting to manufacturers of earth-moving, construction, and related equipment that future designing should not overlook the limitations of air transport.

They would like to see a special line of either small, highly efficient equipment or of bigger models which can be quickly and easily knocked down for air transport.

Formosan Aid—Whatever the ultimate fate of Formosa, the fact remains that the United States, through the Marshall Plan, will spend about $40 million during the current fiscal year for creation of a "healthy Formosan economy." This is being matched with about $30 million by the Chinese government out of its own American dollars. About a third of the ECA money will go into industrial equipment and the remainder into raw materials.

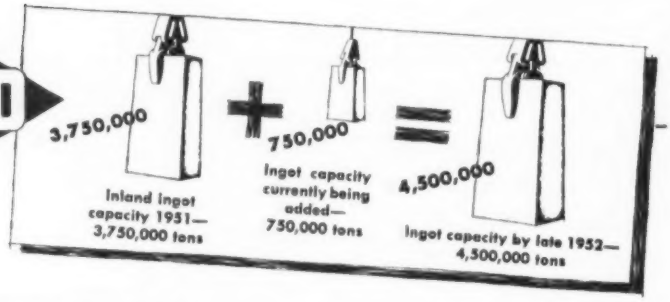
It's the fellow with the long white whiskers and the "DO" engraved on his brief case. He's asking for a lot of our steel. And he's getting it.

While his purchases may hurt some of our regular customers, we're far from reluctant to help him out . . . for we want him to be ready to do whatever is required, if and when Uncle Joe starts the fireworks.

In the meantime, we're building so that he, and all of our friends in the midwest, will have *more* steel.

More scrap from you... means more steel for you

INLAND



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materials handling issue

PALLETIZED VERTICAL STORAGE

revolutionizes warehouse operations

By D. I. Brown
Feature Editor

Materials handling systems employing palletization have been widely installed in metal producing and metal products plants. Yet there has been little application of these principles in the warehouses or machine distribution points of the metalworking industries.

In 1948, International Harvester Co. decided that a better system of stocking machines and machinery was a "must" in their 72 farm equipment district warehouses, scattered over the country. This decision resulted from three major factors which developed after the war: *(1) Rapid expansion of sales volume, (2) larger and more complete inventories of machines than ever before, (3) new warehouse space was at a premium.*

Palletization of machines stocked by International Harvester warehouses is now nearing completion. The system worked out by the Manufacturing Research Div., Sales Operations Research and Order and Distribution Depts. of the company has paid handsome dividends. Increased storage space for same area, reduced handling time, better inventory control, faster and better service to dealers, improved employee

Starting with laboratory-developed procedures and a school for foremen, International Harvester improved inventory control and service to dealers, reduced handling and product damage, and increased storage space in their 72 district warehouses. Palletization, use of "air rights" and mechanized materials handling turned the trick without a single building addition being required.

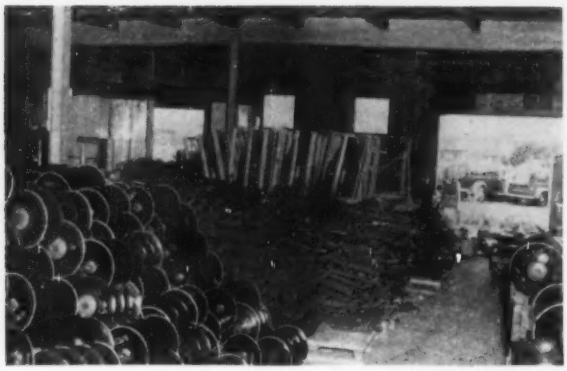


FIG. 1—*Before* (at left). Narrow, crooked aisles impeded handling. Disc gangs, as they were stacked, were dangerous to handle. *After* (at right). The same area with camera facing in opposite direction, showing how cubic space has been utilized.

Warehouse capacity (continued)

relations, better product protection and safer warehouse operation have resulted.

The first installation of the new system was at the Indianapolis district sales warehouse. Systems of palletization for each machine were worked out there and these standard procedures have since been applied to the other sales warehouses. All told, there is more than 2 million sq ft of storage warehouse space in the 72 district offices operated by International Harvester.

Prior to the use of the new materials handling system at Indianapolis, all of the inventory of tractors and farm implements could not be contained in the building. The usual bin and piling methods had overflowed to where all floor space including the aisles was crammed with machines. A large part of the shipping dock area was used for tractor storage.

Two months later, after the palletizing system was installed, the Indianapolis warehouse had a greater inventory of goods. Through better utilization of cubic space, all stocks were now

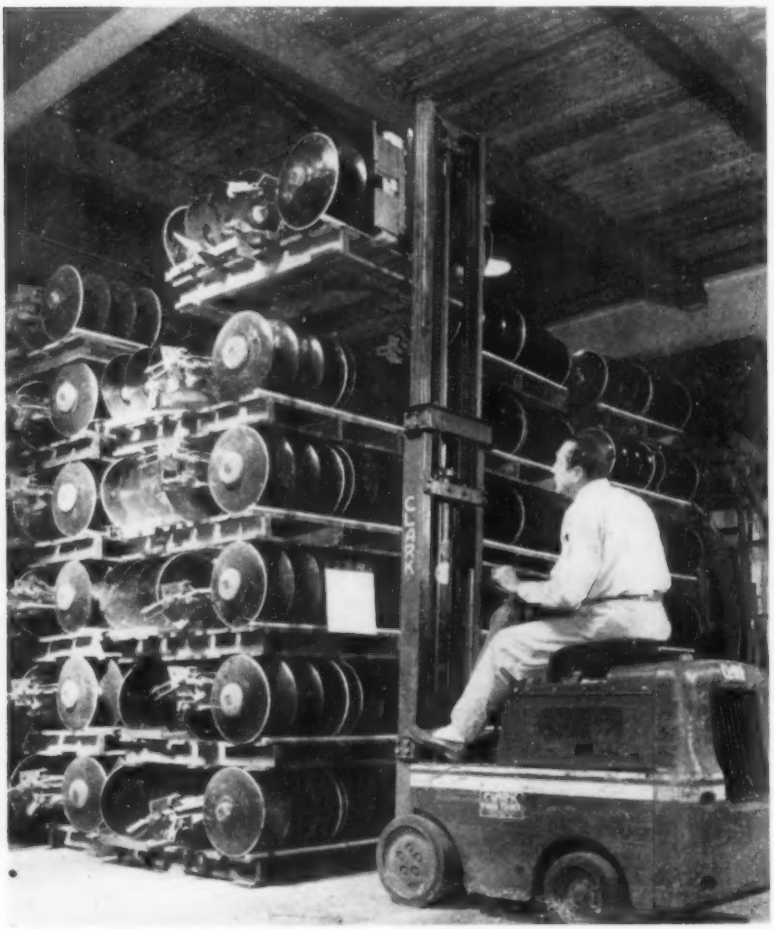
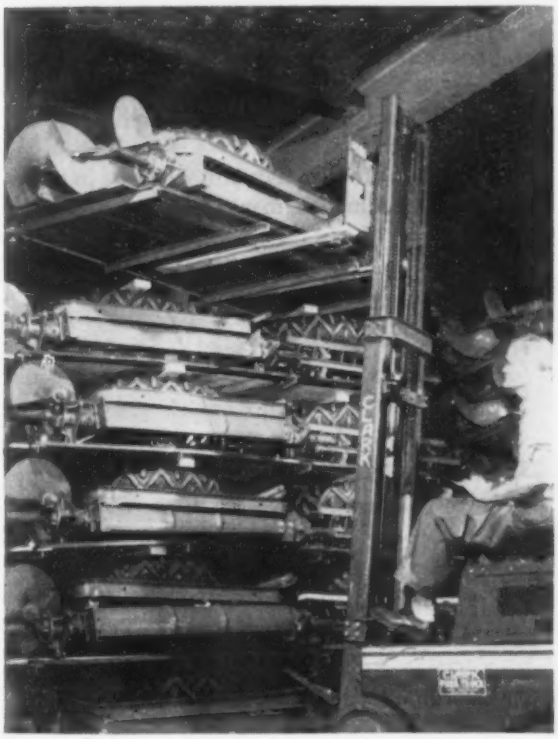


FIG. 2—Each pallet contains a complete disc harrow. Besides eliminating danger to workmen, palletizing of sharp discs has lessened product damage.

FIG. 3—*Before* (above). Old method of stocking parts for manure spreaders. *After* (below). Again, a complete machine is packed on a single pallet.



A complete materials handling laboratory operates on a full-time basis with a permanent staff at the Manufacturing Research Laboratory of International Harvester Co. in Chicago. Loading and packaging, as well as all phases of materials handling, are constantly under study. This laboratory assisted in the development of the system of complete warehouse palletization, which has been adopted by International Harvester's district sales offices.

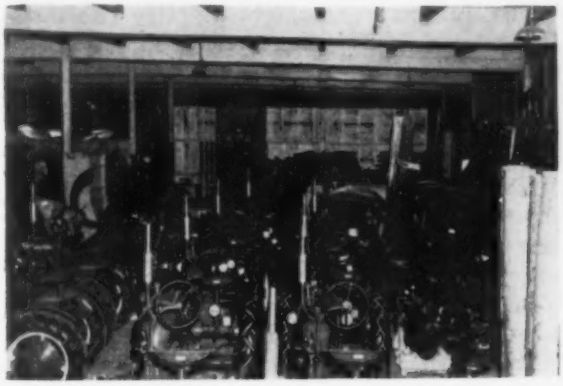
contained in the building and permanent aisles had been established. Faster and better flow of machines resulted. Typical before and after conditions are shown in Fig. 1. The disk harrows, which are dangerous to handle by hand, need not be touched in the new procedure, Fig. 2.

In Fig. 3, another comparison of new and old systems is given. "Air rights," or vertical storage, have been used in all possible cases and the palletized No. 200 McCormick manure spreader shown in Fig. 3 is a typical example. Fig. 4 illustrates how permanent aisles have been established which permit fast, easy access to the stock and greatly simplifies inventory control. In fact, to determine the number of machines in stock it is only necessary to multiply the number of pallets wide times the number deep times the number high. Complete machines made up of two or more pallets are stacked together as shown in Fig. 5. Many warehouses have been supplied with tubular steel racks for air right storage of heavy items such as the engines shown in Fig. 6.

Actual palletizing is done at the warehouse. Carload lots of machines are shipped from the various plants and each warehouse owns its own pallets.

Six basic principles of palletization were developed and standard procedures based on them were prepared in book form. Typical of these procedures is the palletization of a cultivator

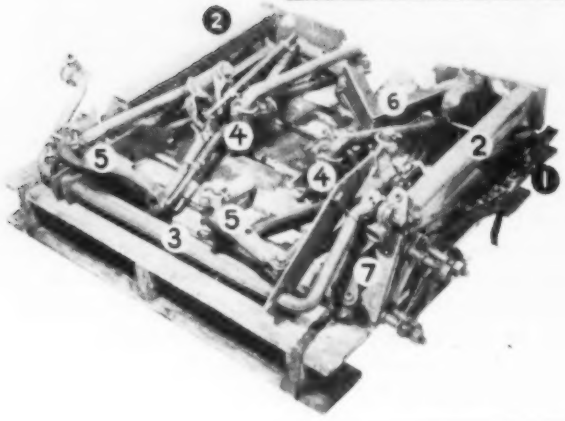
FIG. 4—*Before* (at left). Crowded utilization of space under old system retarded flow and complicated inventory control. *After* (at right). Same area after program was completed.



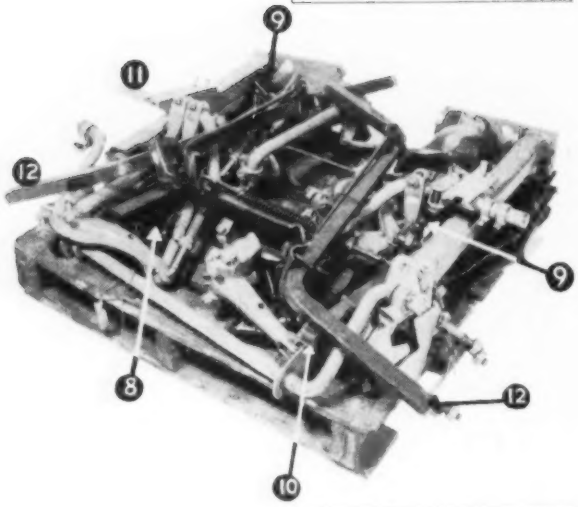
C-254 CULTIVATOR with #10 equipment

Number on a pallet: one
Number of pallets high: six
Weight (less pallet): 852
Dimensions: 48 x 65 x 17

1. Place shields on opposite ends.
2. Front frames on shields with attaching plates at edge.
3. Rockshaft at opposite end, pressure rod swivels in and up.
4. Right hand gang beams inside front frames, clamps toward plates.
5. Left hand gang beams on other end, clamps against rockshaft.
6. Sweeps inside right hand gang beam.
7. Attaching channels under pressure rod swivel.



8. Fit clamps inside left hand gang.
9. Fit lift arms between frame and right hand gang; place shield brackets on opposite side.
10. Place rear center gang with ends toward rockshaft, pressure rod clamp up.
11. Gang arch across front frames, arch down toward rockshaft.
12. Left and right rear gangs on gang arch and rockshaft, jockey arch brackets down.



13. Weave front tool bars into open space in center.
14. Use spring trips to level load.
15. Place wrench at end, crank handle down.
16. Pressure rods at opposite end.
17. Jockey arch diagonally across top.

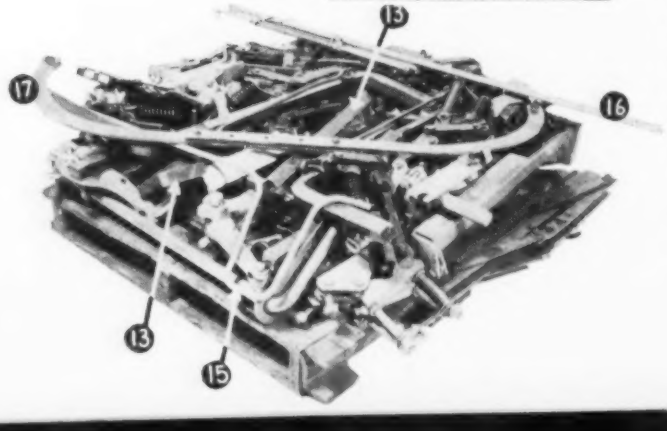


FIG. 7—These sheets of instructions and keyed illustrations are taken from the palletizing procedures handbook that was developed for the 72 district warehouses. From top to bottom, they represent the complete, standardized method of preparing a cultivator for storage.

illustrated in Fig. 7 together with the printed, three-stage instructions setting standard practices followed on this particular job. (See below).

After the system was proved at Indianapolis, the next big problem was to train other warehouse foremen in using this materials handling method. Two schools were set up by the company, one at Indianapolis and the other at Portland, Ore. Warehouse foremen from all sales districts having single-story warehouses attended one of these schools for a 1-week training course and then went back to their respective warehouses to install the system. The Portland, Ore., warehouse is typical of the way other warehouses have adopted the results of the Indianapolis project.

The entire materials handling concept in warehousing of machines or machinery has thus been transformed by the International Harvester Co. Other implement makers are fast adopting these methods. New ideas and applications are appearing constantly and no one is sure where the system will stop or how far it can profitably be employed.

Six basic palletizing principles

1) Every pallet must have at least 4 bearing points.
2) Select bearing points which can support weight of other pallets.
3) Use flat top surface.
4) Never use more than 2000 lb per pallet.
5) Wherever possible, use machine itself as pallet.
6) Protect the finish.

The International Harvester Mfg. Research Div., Materials Handling Section, in Chicago is continuing its research under the direction of R. F. Weber. Further progress and improvement in all types of materials handling can be expected. As a result of the huge success of this project, dealers who sell Harvester machines have become interested. The next step may well be an extension of palletization into the warehouses of the larger dealer organizations.

In the meantime, everyone at the 72 warehouses is more than satisfied with the results of the new system to date. Foremen have found that

FIG. 5—All parts needed for an International Harvester hammer mill are piled in a single tier. Complete machine can be quickly placed on truck belonging to dealer, who assembles the machine.

FIG. 6—Tubular steel racks such as these have been provided for the storage of heavy items such as power units. Lift trucks convey them to shipping dock, where they are loaded directly onto the dealers' trucks.

all operations are being carried out more quickly, efficiently and accurately, from stock handling through shipping to the regular inventories. Better relations between supervisors and their men have also resulted and even customers have noted the improved warehouse service.

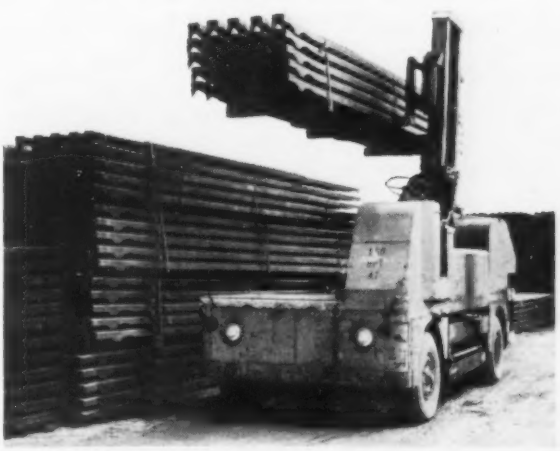
SIDE-LIFTING TRUCK STACKS EXTRA-LONG LOADS

A versatile type of materials handling equipment is in use at the Springfield, Ohio, works of the International Harvester Co. Made by Lull Mfg. Co., Minneapolis, it is used primarily to unload bundled frame side rails and deliver them to storage area and assembly lines. Excellent maneuverability is achieved when used in narrow aisles.

Equipment is self loading from the side and is capable of taking a 10,000 lb load. Material of any length up to 60 ft long can be stacked in storage up to a deck height of 12 ft. All movements are controlled by one operator and for the most part are accomplished by hydraulic power.

In addition to the side frame handling, the new industrial truck is used for unloading and storing bundles of bar steel, which formerly required considerable manual handling.

BUNDLED BAR STEEL and other such lengthy loads are also handled by this Lull Mfg. Co. lift truck.



By John Kolb
Assistant Editor

ORDNANCE AWAKENS ITS SLEEPING ARSENAL

Industry may soon be storing some of its civilian production equipment. The methods used by Army Ordnance for $200 million worth of weapons, machine tools and other war paraphernalia should provide a useful guide. Over 800 dehumidified surplus petroleum tanks were successfully made into economical storage containers. An Ordnance-developed hot caustic washing machine is speeding up reactivation of machine tools.

Every one of the armed services had its own storage and preservation problems at the end of World War II. It was realized that while arms and equipment quickly become more or less antiquated, they could provide a ready basis for a rearmament effort—at least until new equipment could be produced. The huge investment of public funds that the stock pile of arms represented would thus be protected and industry would have a chance to concentrate on more modern weapons.

Large quantities of production machinery, ammunition, small arms, artillery, battleships, airplanes, combat vehicles and other expensive tools of war were put in reserve. Much of this is now being withdrawn from storage and readied for service—some of it has undoubtedly already seen action, Fig. 1. This has made possible comparative evaluations and preservative methods.

In a subsequent article, to appear in an early issue, the methods used by the U. S. Navy in "mothballing," or putting ships in reserve, will be described together with the results found in the current program of reactivating these units.

The Army's Ordnance Corps had mainly tanks, combat vehicles, artillery, small arms, munitions production machinery and other such equipment to preserve and store away. As a result of an extensive research program started even before the war ended in 1944, condition of the materiel now being reactivated has been found to be uniformly good.

One of the major types of storage containers, surplus petroleum tanks 38 to 55 ft in diam, Fig. 2, housed $200 million worth of tanks, combat vehicles and artillery at a cost of 10¢ per cu ft of utilized space per year. These tanks afforded some 20 million cu ft of inclosed space. Due to their cylindrical shape, 35 to 50 pct of this space was actually occupied in a typical tank.

Of course, it was particularly important that stored weapons and supplies be kept in good condition, capable of being quickly issued to troops in adequate quantity. The Ordnance Corps

COMPARATIVE STORAGE COSTS*

Type of Container	Cost per yr per cu ft utilized space
Drums (55-gal steel)	70¢
Unit containers (90-mm gun)	16¢
Petroleum Tanks	10¢

* On basis of 20-year storage. Amortization and maintenance included. Values given are average of costs applying to various methods, such as inert gases or dehumidification.

set a policy whereby all equipment had to be stored in assembled condition, complete with parts, tools and accessories. To be ready for immediate use, old fashioned, heavy coatings of grease could not be used.

Air-tight storage packages seemed to be the best solution. And where the equipment was small enough, it was determined that they should also be able to serve as shipping containers. These containers had to do their job with a minimum of attention throughout a 20-year storage period, as well as being economical and easy to produce in quantity.

At one time, as many as 40 agencies and civilian groups were at work investigating the problem of storing everything from equipment small enough to go into less-than-pint sized cans to packages containing B-29 bombers. Among other possibilities, they investigated strippable film, metal cans (some with an atmosphere of pure dry nitrogen, others charged with dry air and a static dessicant such as silica gel), steel igloos, warehouses, petroleum tanks, balanced pressure barriers, corrosion inhibitors, submergence in oil, dehumidification by heat, refrigeration and dessicant-type dehumidifiers. Interest centered mainly around this dehumidification type of preservation, particularly by dynamic means.

The unit containers were found to have certain advantages over mass storage. They provide maximum mobility and may be stockpiled at remote scattered points. Economically, however, the advantage is all with mass storage containers, as indicated in the accompanying table. These larger storage units also make it easy to get at the equipment for inspection and modification.

Three major types of storage

The Ordnance Corps finally proceeded with three major types of storage projects: (a) Air-tight, sealed individual containers; (b) tests of strippable film, particularly on exposed sites; (c) petroleum storage tanks.

The small arms canning program was conducted at the Rock Island and Springfield Arsenals; about 1 million small arms were packaged in specially built steel drums. Steel trays and spacers were used to support these weapons, and they were coated with rust inhibiting compound AXS-1759. Aircraft machine guns were covered with a light, rust-inhibiting lubricating oil. In both cases, a charge of silica gel was included in the sealed container. To date, this canned material was found to be in good condition whenever packages were opened.

One type of medium-sized container permitted lighter, cheaper construction. A solar radiation breather maintained a pressure inside equal to that outside. Reactivation of the silica gel charge occurs when the warming of the container by the sun's heat causes an out-breathing of air.

The silica gel never becomes saturated with water in the solar radiation breather and is never entirely reactivated. The total water content varies only a few percent and a satisfactorily low humidity is maintained inside the container. The "breathers" have given good results to date when installed on steel packs.

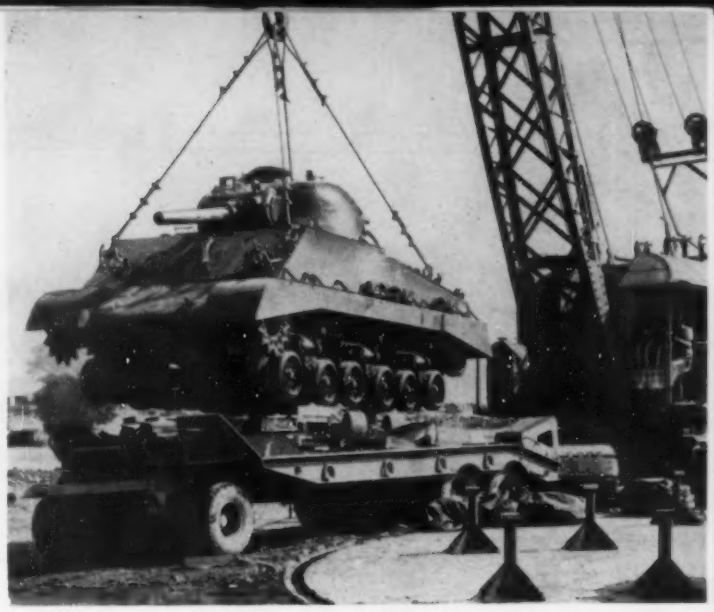


FIG. 1—Fresh out of an Ordnance Corps depot, this medium tank is being loaded on a tank transporter. As can be seen in the photo, its exterior appearance is unchanged by its years of storage in a dehumidified petroleum tank. Official Dept. of Defense photo.

Storage enclosures made of strippable film by the Ordnance Corps were made up of four successive spraying of different coats of vinyl from an ordinary spray gun. The initial spray is a web forming a bridge over openings and voids. A plastic coat is applied over this web; the third spraying consists of gilsonite and asphalt in a pure petroleum solvent. The fourth coat is the same as the second, except that an aluminum paste is added to produce a final, light-colored package that will reflect the sun's heat rays.

So long as this type of protection remains un-

FIG. 2—This is one of the tank farms used to store combat vehicles and other war paraphernalia. An average 30 pct relative humidity is maintained. Official Dept. of Defense photo.

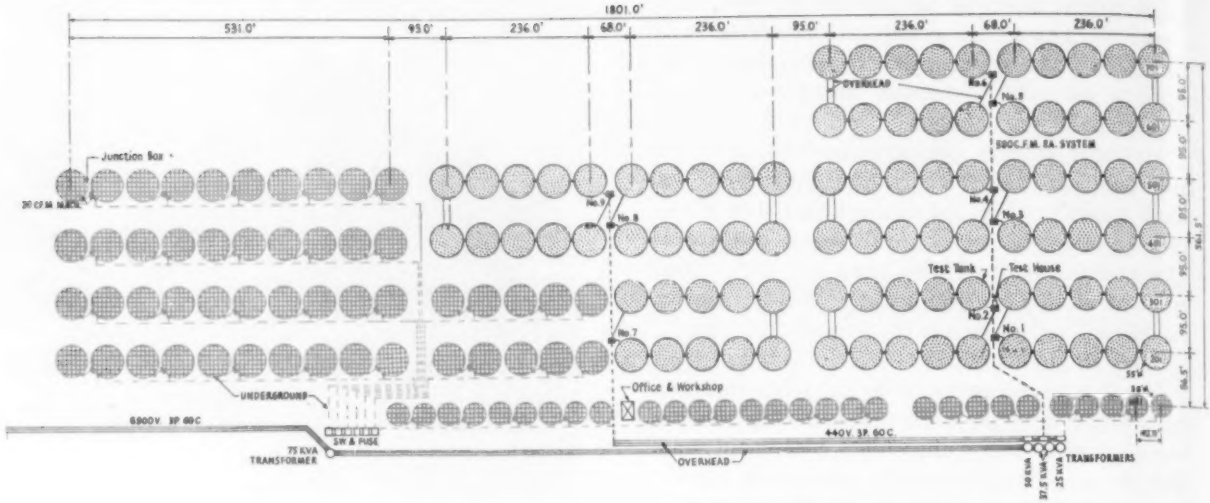


FIG. 3—A typical farm layout. In this particular arrangement, there are single tanks hooked up to 20 cfm dehumidifiers, shown in red, and parallel series of 10 tanks each connected to 500 cfm, dual-bed dehumidifiers.

Arsenal awakens (continued)

damaged, it gives good results. However, it is relatively easy to puncture.

The Army Engineers undertook the erection of petroleum tanks and the installation of dehumidification equipment in 1946. About 800 tanks, distributed around the United States, were completed by June, 1948.

Two basic arrangements for the dehumidification of these tanks were used, Fig. 3. One involved a series system wherein 10 or more tanks were connected to a 500 cfm, dual-bed dehumidifier. Sometimes a 20-cfm machine is used with a single tank.

Number of tanks in single unit doubled

It was later found that by arranging two groups of tanks in parallel series, a single 500-cfm dehumidifier could still do a satisfactory job. This has been done at the Lima Ordnance Depot. All humidifier machines are controlled by humidistats, which automatically start them up when the humidity level rises too high.

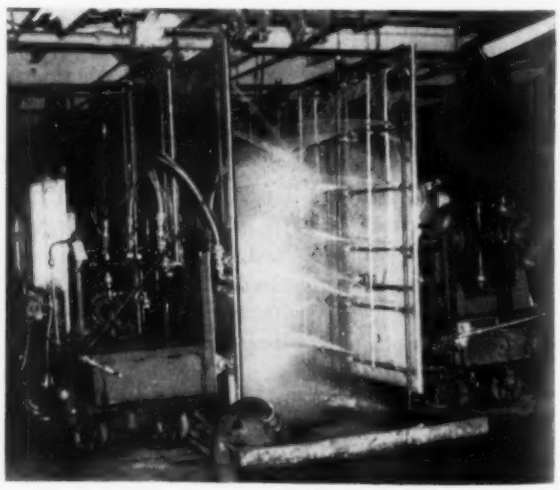
A relative, average humidity of 30 pct is maintained inside the petroleum tank structures. This requires 10 to 40 kwh per day for every 100,000 cu ft of volume served. Based on the average 35-to 50-pct usage of gross space for stowage, this means that the actual cost of power for each cu ft of materials preserved runs from 0.1 to 0.4¢ per year.

The Ordnance Corps gave considerable thought at the outset of the project to the condition in which equipment was to be stored, as well as to the choice of types. At first, all items were to be in Class A condition, but shop facilities could not keep up with the construction phase of the program. However, it can be said that the tank farms have made it possible to maintain equipment in the original as-stored condition.

Probably the hardest and most painstaking cleaning job the Ordnance Corps tackled was that involved in preparing the highly specialized machine tools used for munitions production to go into storage. To make it possible for production to get under way as quickly to possible at any given time, it was necessary to take whole lines of this machinery and put them in "standby" reserve. It was realized that when such equipment was needed, it would be of critical importance if pressure on the machine tool industry could be eased. It would mean that machine tools required to produce machine tools would not be tied up.

Realizing the size and intricacy of the undertaking, the Ordnance Corps first organized a committee of industry and Ordnance representatives capable of devising and organizing adequate cleaning and storage methods, materials and equipment. Once their plans were complete, this committee became the faculty of a school

FIG. 4—This washing machine, used to get preservative oils off munitions production machinery, is mobile. It subjects machine tools to a 150 to 155°F deluge of solvent.



set up to train the necessary personnel.

Briefly, the job which this carefully schooled group performed, beginning soon after the war, was that of disassembling, cleaning, reassembling and applying a preservative oil to the highly specially machine tools going into the Ordnance Corps reserve. The preservative oil was specially developed by the original committee at the Rock Island Arsenal and it is soluble in ordinary operating oils.

Such used machinery vitally needed the most careful cleaning. If sludge, chlorinated cutting oils and other such substances were left on these tools, they could ruin the high finishes and close tolerances typical of such equipment.

It is believed by Ordnance Corps representatives that the disassembly, cleaning and reassembly was the biggest part of the job, and the most critical factor in the success of the whole undertaking was the training of the personnel assigned to the work.

Machinery storage successful

And the undertaking was a success. Only the planned reactivation techniques were required to put the stored production equipment back to work. Damage due to rust and other forms of deterioration commonly associated with long-time storage was almost entirely eliminated.

When reactivation started last year, complete lines of machine tools, laid out in their own shops, were processed in a continuous system. The Ordinance Corps' own staff had develoloped a machine capable of cleaning a 6-ton machine tool heavily coated with preservative in 7 min. With all access ports and openings to internal gearing and other such mechanisms opened, this cleaning device, Fig. 4, subjected the machine tool to a 150° to 155°F deluge of solvent. This solvent was also newly developed, having a minimum flash point of 175°F.

This washing unit is mobile. As it works its way down a line of machine tools, it carries its frame-mounted, multiple spray nozzles, its pumping system, solvent filtering and reclaiming equipment along with it. Calked wooden sump frames are laid down on the shop floor around each machine tool being processed ahead of the device. Some of these units were built by Ordnance for similar reactivation programs conducted by the Navy.

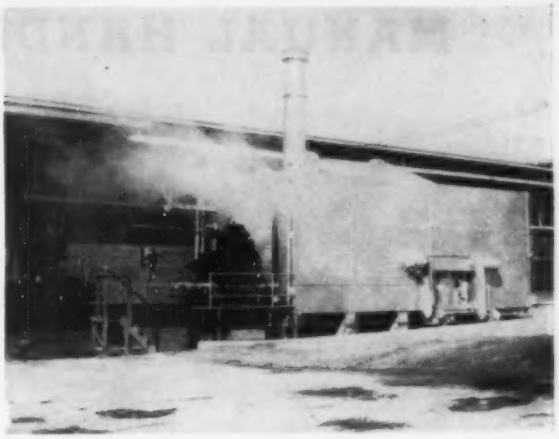


FIG. 5—The Ordnance Corps also uses this stationary type of machine tool washing equipment, through which the equipment being processed has to be moved.

Another version of this washing machine is stationary, and production equipment to be processed moves through it, Fig. 5.

It is believed by the Ordnance engineers who devised this equipment that the secret of its success is the hot deluge of solvent that it applies to tools being cleaned. It speeds up and eases the subsequent reactivizing steps. These are the complete disassembly of the machine tool, cleaning it and reassembling it.

The reactivation of one stored ammunition production line provides an example of how the Ordnance Corps' new washing machine has shortened the time required for reactivation. It was estimated that using older methods, this particular line of machine tools would have required 90 days to get it ready for disassembling, cleaning and reassembling. With the new processing equipment the job was completed in 12 days.

NEW BOOKS

Engineering Metallurgy, by A. P. Gwiazdowski, discusses fundamentals of engineering metallurgy to help the design engineer select materials and thermal treatments intelligently for a combination of high quality and minimum cost. The text is designed to give the student, purchasing agent, production executive and engineer basic metallurgical information about the nature and characteristics of the commercially important metallic elements and alloys, for use in any shop, small or large. C. C. Nelson Publishing Co., Appleton, Wis., $4.00. 248 p.

High-Frequency Induction Heating, by F. W. Curtis. This revised second edition is a practical explanation of heat application in the production of metal parts. The book explains fundamental electrical principles involved in high-frequency induction heating and describes construction design of induction heating coils; it discusses application of induction heating for hardening metal parts, joining of metal assemblies and similar operations. Material is presented on fixture designs. McGraw-Hill Book Co., 330 W. 42nd St., New York 18. $6.00. 390 p.

MANUAL HANDLING *eliminated* IN FERROALLOY PLANT

By L. C. Hopper
Engineer
The Elwell-Parker Electric Co., Cleveland

A variety of transportable racks for use with power industrial trucks are used in the metal-working industries. Most of these are designed simply for vertical pick-up, conveyance and put-down. At Ohio Ferroalloys Co.'s plant in Philo, Ohio, however, there is a novel type which combines these features with a tiltable unloading mechanism operated from the driver's position on the truck.

The truck's functions are to transport racks loaded with alloying briquettes from the forming machines to the drying rooms, and thence to the bulk storage bins. Here the operator pulls a small hand lever controlling a winch mounted on the side of the truck. The rack is tilted and the briquettes slide out into the storage pile. The rack remains on the truck and is promptly returned to the forming machines. Subsequently, in filling customers' orders, the briquettes are transported from stockpiles to freight cars in specially designed steel tote boxes equipped for a similar tilting operation.

The briquettes are formed on sheet metal plates, known in the industry as pallets, and are then transferred to the waiting racks by means of a special crane device. The loaded racks weigh about 3000 to 4000 lb and can be

THESE BRIQUETTES are formed on sheet metal pallets, which are then loaded on racks. They remain in these racks for their trip from the forming machines to drying rooms and, finally, to stockpiles.

THE REAR END of the platform on which the loaded rack rests is connected by cable to the truck. Moving a lever causes this platform to tilt, dumping the briquettes onto a stockpile where they remain until shipped.

No manual handling is required in processing and moving these alloying briquettes. They are formed on pallets, which are loaded on tiltable racks. There they stay through the drying operation, finally being dumped off onto stockpiles or to freight cars.

transported without damage even though the briquettes are fragile at this stage.

Two types of Elwell-Parker electric power trucks are used at this plant. The one that transports the racks is a Model F-19, 6000-lb capacity fork lift truck.

Three additional, Model ELN-6, 6000-lb capacity high-lift platform trucks are used for shipping needs and general materials handling work around the plant.

The F-19 is equipped with a special platform hinged at its forward end, in place of the customary forks. The winch cable is attached to the platform at the opposite end.

A loaded rack is picked up on the truck's tiltable platform in the usual manner. An angle iron support running across the rear of the platform engages the rack and holds it in place while dumping. For additional stability, a special hook automatically engages the upper edge of the rack to prevent it from tilting too far forward. Angle iron stops on the front edge of each shelf on the rack prevent the pallets from sliding out but do not interfere with the briquettes.

The ELN-6 platform trucks used for handling tote boxes are also equipped with special chain-operated dumping platforms hinged at the forward edge. After being loaded at the stockpiles, these boxes are picked up by the trucks and delivered to freight cars. Boxes are of special design with a swinging door in front to facilitate dumping.

The ELN-6 trucks are in continuous operation 24 hr a day, a battery exchange system keeping them operating at peak efficiency. The F-19 used for handling racks is operated eight hours a day, during the daylight shift. This is due to the overnight drying required for the briquettes.

AS MUCH AS 6000 lb of alloying briquettes are handled at one time in these tote boxes, used to move the finished product from stockpiles to freight cars. This truck is also used for general materials handling work.

THE TOTE BOX on this truck also rests on a tilting platform. In dumping the load, a latch on the box's swing door is released and the box tilts forward by means of a chain and winch operated from the driver's position.

Cost cut

BY MATERIALS POSITIONING AT MACHINE

Installation of equipment for materials positioning at the machine has resulted in big savings for the Formica Co., Cincinnati, makers of laminated plastic materials and products. Through installation of new sanding machines equipped with materials positioning devices, production has been doubled and labor requirements cut 75 pct. Floor space requirements have also been reduced.

The process of manufacturing Formica sheet material includes a high-pressure, high-temperature pressing operation. This is performed between plates of stainless steel, with waxed paper used to prevent sheets sticking to each other. Subsequent removal of this unwanted waxed paper from the sheets entails an operation which, until recently, has been slow and expensive.

Formerly, the waxed paper backing was removed by running the sheets through a battery of eight sanders. These processed a maximum of 5000 sheets a day. This proved to be a production bottleneck as demand for Formica increased.

FINISHING FORMICA sheets in machine which removes waxed paper backing. Elevators in foreground, controlled by pushbuttons near operator, position trucks which deliver and receive sheets. Operator positions trucks to keep top sheet on load at proper level so sheets, with no manual lifting, can be slid from truck to grinder and grinder to truck.

The eight grinders were removed and replaced with four Micro-Grinders equipped with Port-elevator electrically-operated pit-installed elevating tables. These tables position sheet material being fed into the machine and receive sheets from the machine.

With previous equipment, each sander was equipped with a feeding table on one side and a receiving table on the other. Formica sheets, about 200 to the load, were rolled into position next to the sander and run through the machine in six steps. First, each sheet was manually removed from the truck and placed on the feeding table. Then the face of the sheet was covered with a sheet of cardboard to protect it from the possibility of damage while being sanded. Then the operator would feed the sheet and cardboard through the sander.

Four men replace sixteen

Another operator would receive the sheet on the receiving table. He would remove the cardboard and pass it back to the feeder for reuse. As a final step, the second operator would lift the sheet and place it on a waiting truck.

This operation required the constant attendance of two men at each sander. Equipment, including the two trucks, occupied approximately 160 sq ft of floor space. At maximum speed, the equipment could handle only 5000 sheets in a 24-hr period.

The new equipment can process 11,000 sheets in 24 hr. Only two operator actions are required, which can be handled by a single workman. Thus, four men replaced the 16 men formerly required.

A truckload of Formica sheets, which was previously placed beside the old feeding tables, is now rolled onto the platform of the Port-elevator which replaces the feeding table. The platform is then lowered below floor level to bring the top sheet of the stack to proper feeding level. Since there is no possibility of damage to the face of the sheet, no cardboard is required and the operator has only to feed the sheet into the machine.

With the new equipment, four men produce twice as much as 16 men formerly did. Sheet handling has been reduced 66 pct. Floor space per sheet processed is ⅛ of former needs. Formica engineers estimate that 40 pct of this improvement is due to the new grinders, and 60 pct due to the materials positioning equipment.

Transfer press positions work at HIGH SPEED

By J. M. Delfs
Industrial Engineering Divisions
General Electric Co., Schenectady

Transfer presses have been successfully clamping and positioning work at speeds once thought too high for electric motor operation. A unique system of controlling speed, torque and inertia synchronizes the transfer mechanisms with the very rapid forming sequence, while safeguarding dies against damage.

The use of feed drives operated by electric motors is a new approach to the problem of work handling on transfer presses. More than 2 years of successful operation of electric-motor-operated clamping and positioning drives, operating at speeds formerly considered too fast for motor operation, have demonstrated the practicability of such drives.

The drives are employed on a group of four large Verson transfer presses used to produce drawers, trim rings and drip pans for electric ranges at the Chicago plant of Hotpoint, Inc. The largest of these presses is a 450-ton, 8-station press measuring 262 in. between housings. The others are two 250-ton (Fig. 1) and one 150-ton, 10-station presses. A previous article (THE IRON AGE, June 2, 1949, p. 60) described these presses.

Careful study was given to the type of clamping and feeding mechanism used to transfer the work between die stations. Mechanical, hydraulic and electric drives were considered, but because of the unusually large size of these presses and the large size of the workpieces to be handled, electric drives offered the best solution.

The system finally adopted uses dc motors supplied with adjustable voltage power from Amplidyne generators to actuate all of the work transfer mechanism.

Although the four presses differ in size and detail, they all have the same general type of work transfer system.

System must work at high speed

In the development of the electric transfer mechanism for the 450-ton press, certain basic requirements had to be met. The mechanism must operate at high speed in order to stay in step with the press. The system must be as simple as possible and be thoroughly reliable under continuous operation.

The work transfer mechanism must be synchronized with the rotation of the press main eccentrics and the motion of the slide. After each

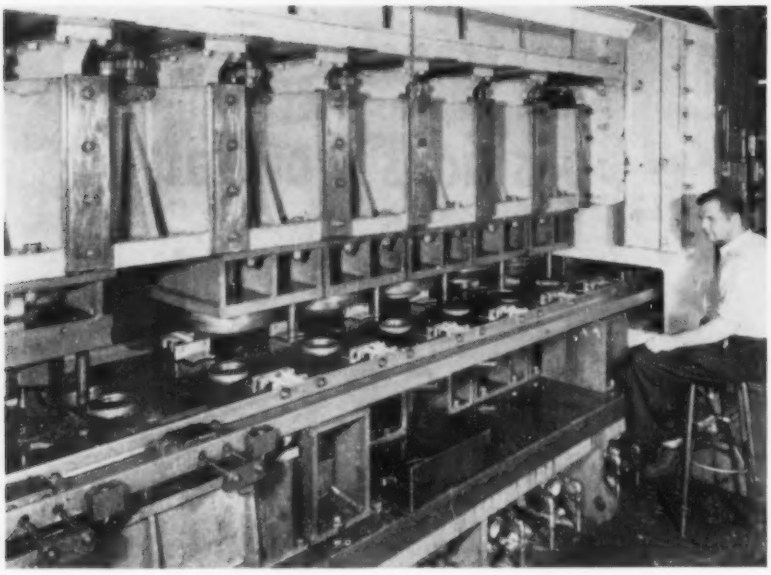


FIG. 1—This view of the work table of a 250-ton Verson transfer press shows dies, feed fingers, transfer bars and one of the products fabricated—trim rings for electric ranges.

Transfer presses (continued)

stroke, as soon as the slide moves up enough to be clear of the work, mechanical fingers must move in from both sides of the press, grip each piece of work, move the work over to the next station, accurately position the work over the next die, and then move out clear of the dies before the slide comes down for the next stroke. While the slide continues down through the bottom of the stroke, the feed mechanism returns to the starting position.

Fig. 2 shows the arrangement of the drives. The fingers which grip the work are carried by parallel aluminum bars running the full length of the press. These extend through the housings at both ends to the drives which operate the clamping and feeding motions.

For the clamping and unclamping operations, the parallel bars are operated from both ends of the press. The two clamp motors operate through gear trains to rack and pinion mechanisms. Forward rotation of the clamp motors will move the parallel bars together so that the fingers attached to the bars will grip the work at each station. Reverse rotation of the clamp motors will drive the bars apart so they are clear of the dies.

For the feed operation, a single motor located at the discharge end of the press operates through another rack and pinion mechanism to move the feed fingers along the bars. The fingers are attached to individual slides coupled together by rods moving in gibs on the parallel bars.

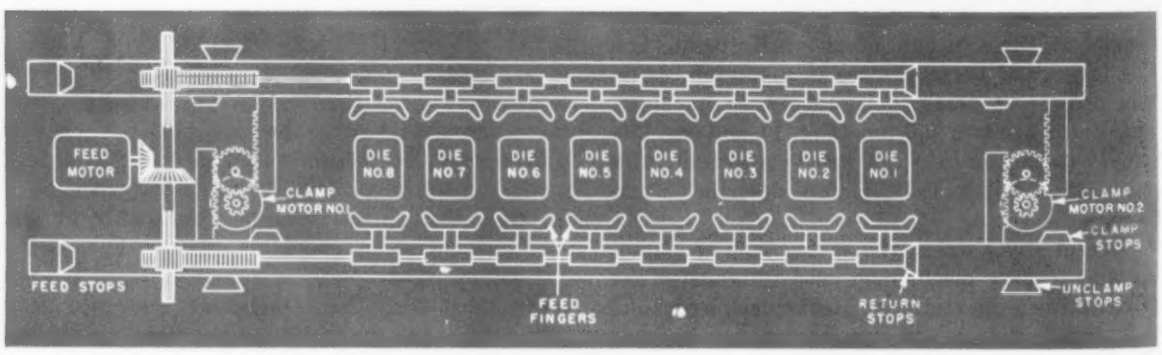
The operating cycle is matched to a press speed of 8½ strokes per min. Approximately 1 sec is allowed for operating the clamps, 2 sec for feeding, 1 sec for opening the clamps, and 2 sec to return the feed, plus a small amount of time between each of the operations.

Stops provide accurate positioning

For each of the four movements in the cycle, accurate positioning is accomplished by stalling the drives against mechanical stops. While these stops are adjustable to set the length of the feeding and clamping strokes, they are rigid when set.

The transfer mechanism must obviously move at high speed to meet the operating cycle. To prevent excessive shock, it is essential that the drives be provided with deceleration control to

FIG. 2—Schematic diagram of work transfer drive.



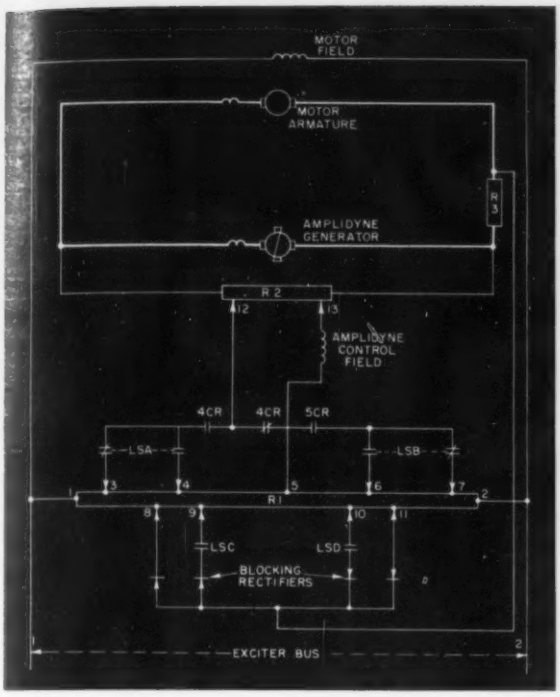


FIG. 3—Diagram of the control circuit for one of the clamp drives.

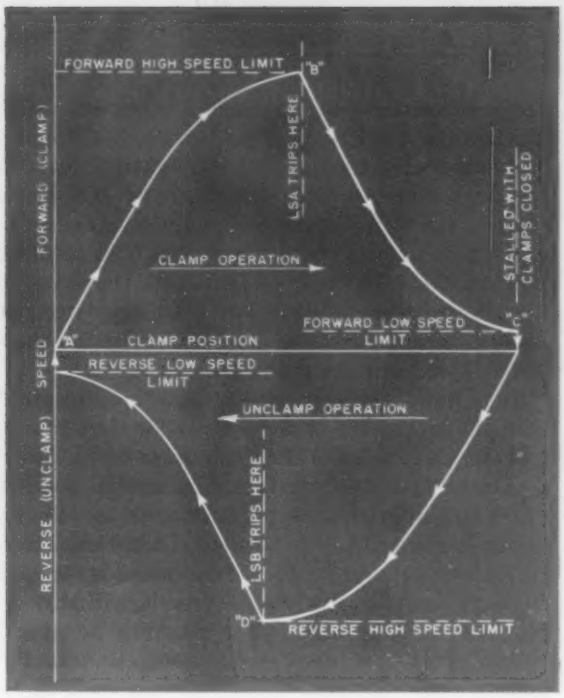


FIG. 4—Diagram of operating cycle of one of the clamp drives, showing relationship of clamp drive speed to clamp position.

bring the motion down to slow speed before the stop is reached. The motor drives must develop high torques to produce the required acceleration and deceleration in moving the transfer mechanism and the work.

If the drives were to be stalled against the stops with this high torque, damage to gearing and other mechanical parts would result. Therefore, the control system used must also limit the available motor torque before the motor stalls against the mechanical stop at the end of each movement. Furthermore, the inertia of moving parts, including the motor armatures, must be kept as low as possible.

Fig. 3 shows a simplified diagram of a part of the control circuit for one of the clamp drives. Similar circuits are used for the other clamp drive and for the feed drive.

Drive motor linked to amplifier

The dc drive motor is connected in an adjustable voltage loop with an Amplidyne generator. This generator is a rotating amplifier similar to a conventional dc generator, except that very small field excitation is required. The generator voltage can be made to change very rapidly with changes in its control circuit. The control circuit provides reversing, adjustable speed control, and adjustable current limit or torque control. Control of the excitation on a single field winding of the generator provides all of these functions.

Generator voltage, and thus motor speed, is regulated by controlling the field of the generator. In the regulating circuit, Fig. 3, speed feed-back voltage from resistor R2 is compared with the speed reference voltage from taps on the voltage divider R1. Taps 3, 4, 6 and 7 on this divider may be preset for motor forward high and low speed. Switching from one tap to another during the press operating cycle is accomplished by means of limit switches and relays.

Taps 8, 9, 10 and 11, Fig. 3, are part of the overriding current limit or torque control circuit operating on the same Amplidyne control field. Taps 8 and 11 set a maximum value of current used for acceleration and deceleration; taps 9 and 10 set a lower value to limit motor torque when the drive stalls against the stops. The current limit circuits control regenerative braking currents as well as accelerating current and stall torque.

Drive stalls at low torque

Fig. 4 illustrates the operating cycle of one of the clamp drives. This diagram shows motor speed or clamp velocity and position for the clamping and unclamping motions. At point A the drive is at rest and the bars carrying the feed fingers are fully open and clear of the dies. When relay 4CR, Fig. 3, picks up, the drive starts accelerating toward the high preset speed determined by tap 3. At point B, of Fig. 4, when the clamps are about halfway closed, limit switch LSA trips and the drive decelerates to the low preset speed determined by tap 4. At point C the drive comes in at low speed and stalls against the clamping stops. Between points B and C, the torque control limit switch to SC trips to switch the torque limit from tap 8 to tap 9. Thus when the drive stalls at point C, it stalls at low torque.

The clamp drive remains stalled against the

stops while the feeding operation is performed. During the feeding operation, relay 5CR picks up to set up the clamp opening operation. As soon as the feed motion is completed, relay 4CR drops out and the clamp drive motor accelerates in the reverse direction to open the clamps. At point D, limit switch LSB trips to decelerate the drive to low speed before it strikes the unclamp stops at point a. Limit switch to SD trips between points D and A to limit the stall torque at A.

The work transfer drives are synchronized with the movement of the press slide by a rotary cam switch coupled to the main press drive. After each stroke of the press, a cam switch contact closes to start the work transfer cycle as soon as the slide rises clear of the work. Additional cam switch contacts insure that if the press is stopped during its stroke, the transfer cycle will stay in synchronization, rather than running on ahead of the press and finishing a complete transfer cycle.

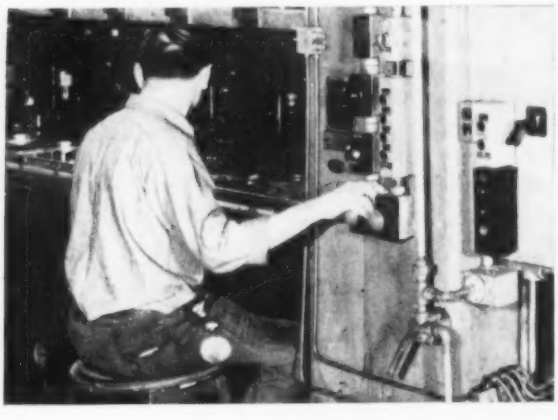
Separate motors replace lengthy shafts

Separate clamp drive motors were provided at each end to eliminate the need for running shafts the great length of the press. This raised the problem of keeping the two clamp drives in step with each other. With the control system used, when the rotary cam switch contacts close to energize the motors for the clamping operation, it picks up relay 4CR (Fig. 3) which energizes the Amplidyne generator fields for both clamp drives. Thus simultaneous starting of the two drives is assured.

Numerous precautions were taken to guard against faulty operation. Full - travel limit switches on each of the drives insure that for each of four motions in the transfer cycle, the drive must stall against the stops, indicating that the movement has been completed, before the next operation can start.

Serious damage would result to the dies and press if the clamps failed to open clear of the dies before the slide came down. Two contacts on the rotary cam switch guard against such failure. These are interlocked with limit switches at each end of the press operated by the mechanism bars. They assure that if the bars do not open fully before the slide comes down, the clutch will be de-energized, the brake will set, and the press will stop before the die can be damaged.

FIG. 5—In this view of the entrance end of a 250-ton, Verson transfer press, the control panel may be seen.



Four pushbuttons, Fig. 5, marked Clamp, Feed, Unclamp and Return are provided for setting up and checking the operation of the transfer drives. By operating these pushbuttons in sequence, the operator can run through the transfer cycle manually without engaging the clutch or moving the press slide. A Manual-Automatic selector switch renders the pushbuttons inoperative while the press is on automatic cycle.

The transfer drives on these presses illustrate the operating speeds attainable with motorized positioning drives. On the 450-ton press, an actual check with a cycle counter showed that the 12-in. clamping motion could be completed in 25 cycles of a 60-cycle timing wave—a little less than ½ sec. The feed or return motion of 30 in. could be completed in 50 cycles or 5/6 sec.

The other three presses equipped with the same type of work transfer drives are smaller, the feed movements shorter and the masses to be accelerated and decelerated less. However, in some respects, the operating duty on their feed drives is more severe because the presses operate at higher speeds. Two of the smaller presses operate at 12 strokes per min and the third operates at 18 strokes per min. Actual operation shows that the drives can all complete each motion faster than the cycle time allowed.

Inertia had to be kept low

On the 450-ton press, the 30-ft-long operating mechanism represents considerable mass to be accelerated to high speed and decelerated again in a travel of 12 in. and in less than ½ sec. Mechanically, the problem was to keep inertia low, which was done by such means as saving weight by using aluminum alloy bars and selecting motors with low rotor inertia. Electrically, speed is obtained by the rapid response of the Amplidyne generator. It responds very rapidly to changes in the generator field control circuit.

With this control circuit, during any operation such as clamping or feeding, no relay operation is required, so the time consumed by relay pickup or dropout is eliminated. The generator field currents are so low that switching can be done directly by the limit switch contacts without any intermediate relaying. The relays used to change from one operation to the next during a cycle can, because currents are so low, be small and have an operating life of many millions of operations.

The first of these four presses was put into operation nearly 2 years ago. Since that time, operation has been trouble-free with a minimum of maintenance required, and every indication is that future operation will be equally satisfactory.

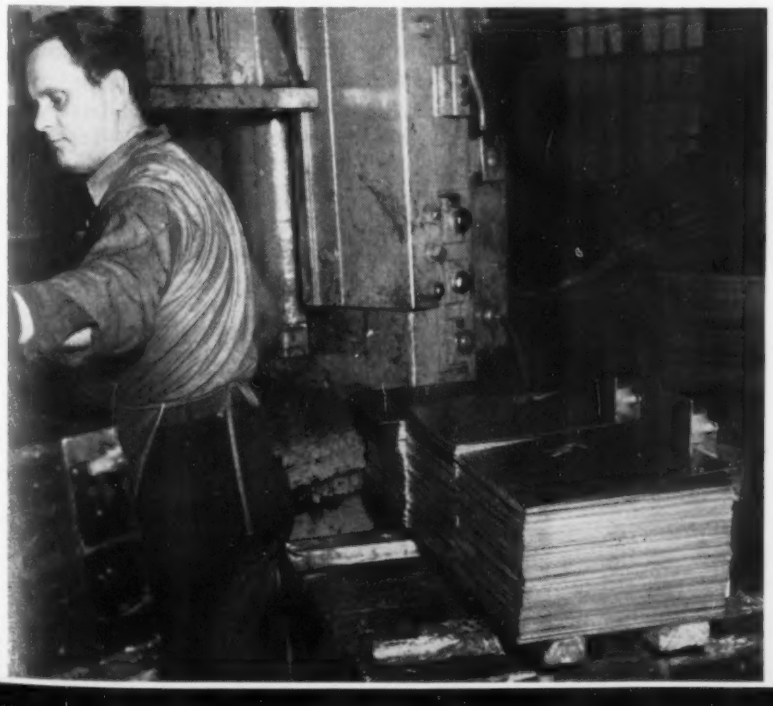
Magnetic sheet separator improves production

SIX-INCH HEAVY DUTY floaters, one on each side of stack of irregularly shaped blanks of 14-gage material, make feeding a press quicker and easier.

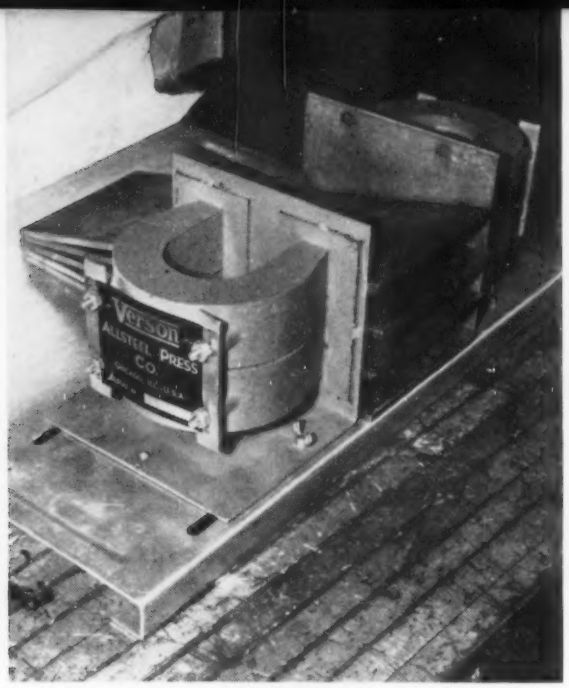
A magnetic sheet floater for use in stamping companies or wherever punch press and shearing operations are carried on has been introduced by the Verson Allsteel Press Co., Chicago. Purpose of the sheet floater is to separate a stack of sheets by means of repelling magnetic fields, so that punch press operators can easily lift a sheet from the top of a stack and feed it into the press.

Two or more Alnico V magnets mounted on a stainless steel bracket attached to an L-shaped stainless wearing plate make up the sheet floater. Each unit is fastened to the surface supporting the sheets, which are placed beside it with an air gap of 1/32 in. Induction causes the steel sheets to assume the polarity of the poles. As a result, they repel each other and separate at distances from $\frac{1}{8}$ to $\frac{3}{4}$ in., depending on width and gage. As each sheet is taken off the pile, those remaining stand up successively. Overall heights of the different sizes are 6, 8, 10 and 12 in. A standard sheet floater can handle 20 gage and below while a super model is used for heavier gages.

Sheet floaters can be used to advantage in several ways. They cut down feeding time, reduce cuts on the hands and lower glove expense. Irregular shaped sheets can also be handled more quickly. Although a relatively new item, it is being used successfully in several plants in the Milwaukee area. At Western



TWO 12-IN. standard sheet floaters placed against stacks of 20-gage sheared blanks.



TWO HEAVY DUTY, 6-in. floaters separating 1/4-in. plates.

Magnetic sheet separator (continued)

Metals Specialty Co., round blanks were being fed into a punch press for a secondary operation. Because the plates were usually oiled and a burr remained after the blanking operation, the steel plates had nested. This made separation of the individual steel pieces a difficult job even with a sharp pointed tool. Use of a sheet floater increased production 300 to 500 pct in this instance.

In another case, a worker engaged in separating 14 x 14 in. square steel plates by means of a screw driver and handing them to the press operator was released for more productive work in the Milwaukee Stamping Co.'s plant.

National Enameling and Stamping Co. figures the cost of the floater will be justified on the basis of savings in gloves alone, which heretofore cost them between $350 to $400 per month. Where sheet floaters are not used, operators usually run their hands along the side of a stack before lifting off the top sheet to feed it into the press. This causes excessive wear on protective gloves. In addition it causes frequent trips to the first aid room for treatment of small cuts on the hands resulting from the practice. Prevention of damage to expensive dies caused by the feeding of two sheets stuck together is of major importance.

Arrangement of sheet floaters depends on the type installation. For separating circular blanks, two sheet floaters are placed perpendicular to each other and tangent to the stack. To handle small sheets they are placed on opposite sides of the stack where the whole sheet is raised across its width. For larger and heavier sheets they are placed a short distance from one of the corners. In some cases only one unit is necessary.

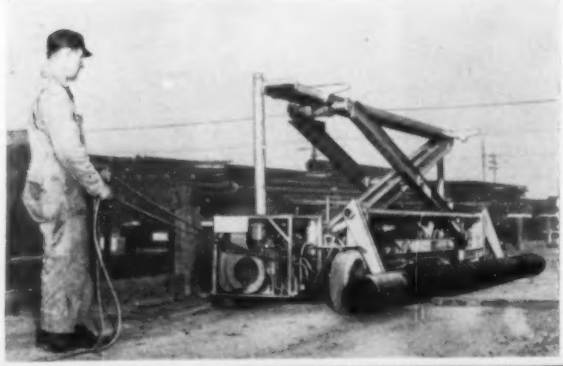
Loads 2 tons of pipe every 17 seconds

An hydraulically operated pipe loader that can lift a maximum of 4000 lb to any height up to 11½ ft has been developed by the Republic Supply Co., Los Angeles. The new device is remotely controlled by means of cords attached to a four-way valve, permitting the operator to stand up to 25 ft away.

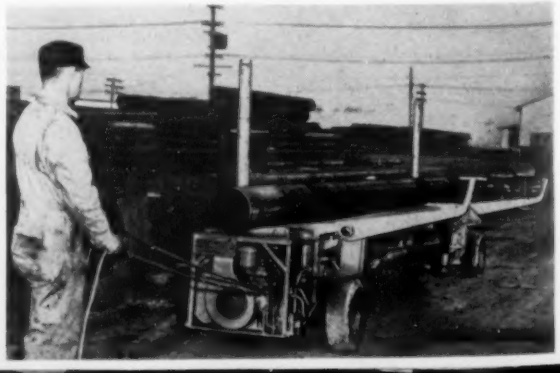
Only 17 sec are required to place from one to several pipe joints on a truck or gondola, including the return to position for the next load.

When at rest or in transit, the pipe loader is a compact, mobile unit, self-propelled but also designed so that it can be towed. The same hydraulic power used for lifting also drives a fluid motor that is connected to a transmission, permitting speeds up to 4 mph. A chain drive between transmission and differential completes the drive with four speeds forward and reverse.

THE NEW PIPE loader's forks are shown at ground level, with a pipe joint ready to be lifted. The hoisting section of the device is shown partly raised.



A SECTION of pipe has been lifted so that it has rolled over onto the pipe loader's hoisting platform. These cords provide control of the device up to 25 feet away.



Rough Sailing Ahead for CMP—Will Open-End Work?

Steelmen see stampede for free metal . . . Agree plan is best for emergency distribution but have doubts on some features . . . No guarantee for more metal.—*By Bill Packard.*

New York — The shakedown cruise of the new Controlled Materials Plan promises to be a rough one. Nor is the good ship CMP likely to face clear sailing after its third quarter shakedown cruise is ended.

Basic metals producers are not exactly falling over each other in their eagerness to compliment the government. Nearly all of them believe CMP is fundamentally the right approach to the problem of distribution during the emergency. Yet most of them are privately skeptical of some features of the plan.

What worries them most is the false impression going 'round that CMP will mean improvement in the supply of steel, aluminum and copper. It won't. It is true that production schedules will become more orderly. But existing facilities are already being strained to the limit. Greater production is coming—only as fast as new capacity is brought into operation.

Guns and Butter—The open-end feature of the new CMP is quite different from its successful predecessor of the last war. This is a complicating factor. It reflects guns-plus-butter thinking. It aims to assure the "gun makers" all the metal they need and leave the "butter makers" free to scramble for what's left.

Metal supplies are likely to become easier only for the "gun makers"—whose needs will be scheduled under CMP. Improvement of open-end or "free" market supplies can only be created artificially by mandatory restraints on consumers. If peacetime users aren't restrained they'll trample each other in the stampede for "free" metal.

Metal producers fear official statements from Washington have lulled their customers into expecting more metal for regular peacetime uses than will be available. This could cause a lot of customers to think they aren't getting a fair share.

Copper producers are already urging the National Production Authority to take over complete allocation of copper when CMP starts July 1. An industry spokesman told THE IRON AGE he believed CMP would leave less than 25 pct of copper supplies for nonessential uses. Copper producers believe distribution of the shrinking supply of "free" metal will cause more trouble than if total output were scheduled under CMP.

Defense and essential aluminum needs, as presently outlined, add up to 90 pct of expected primary output (THE IRON AGE, Apr. 5, p. 117). This does not consider secondary aluminum and imports.

Bleed Small Man — Aluminum producers would prefer to sell their metal to fabricators who can help develop steady future markets. But they see a bleak outlook for some of their small customers who don't have defense work and

Turn Page

Pool Orders to 6 Firms

Washington — An additional $8.6 million in machine tool pool orders has been awarded by General Services Administration to six firms. Total pool orders now amount to more than $87 million.

This week's contracts were to Hydraulic Press Mfg. Co., $689,340; Denison Engineering Co., $879,599; E. W. Bliss Co., $3,155,420; Clearing Machine Corp., $1,539,493; American Steel Foundries, $865,680; and Bardons & Oliver, Inc., $1,525,917.

Foy Heads Metals and Minerals In Reshuffled NPA Industry Units

Washington—Norman W. Foy, on leave as general sales manager for Republic Steel Corp., is heading up the newly created Metals and Minerals Bureau in National Production Authority's reshuffled industry divisions.

Under the new bureau will be: Iron & Steel, Aluminum & Magnesium, Tin-Lead-Zinc, Copper, and Miscellaneous Metals and Minerals.

Some 20 product groupings are regrouped into four bureaus according to related industries. The other three are Chemical Rubber, and Forest Products; Industrial and Agricultural Equipment; and Textile, Leather, and Special Equipment.

Heads of the four new bureaus will, in effect, make up an executive committee for carrying out the announced CMP.

INDUSTRIAL SHORTS

New Ownership—The purchase of the NEBEL MACHINE TOOL CO., by Charles W. Doepke and Frederick W. Doepke of Cincinnati, has been completed. The Nebel name will be continued.

Exclusive Rep. — CARL HIRSCHMANN CO., Manahassett, N. Y., has been appointed exclusive U. S. representative for Thommen, S. A. Waldenburg, Switzerland.

Will Move—The Chicago sales offices of CINCINNATI MILLING & GRINDING MACHINES, INC., and CINCINNATI MILLING PRODUCTS DIV., are moving to 104 N. Oak Park Ave., Chicago.

Ryan Building — Construction was started by RYAN AERONAUTICAL CO. on a new 14,000 sq ft warehouse-hangar, which will be located on San Diego's Lindberg Field adjacent to Ryan's customer service shop building.

Plant Purchased—WILLYS-OVERLAND MOTORS, Toledo, has purchased the former Chevrolet plant at Anderson, Ind. Work will start on a $7 million tooling program for producing jet engine components.

Construction Project — WINSTON BROS., Monrovia, Calif., has been awarded a $2,240,359 contract for construction of the Flat Iron power plant, pumping plant, and bay dam, a part of the Colorado-Big Thompson reclamation project.

Firm Founded—A new organization known as PERMAG CORP., located at 214 Taaffe Place, Brooklyn, has been formed and is a subsidiary of Langwood Products, Inc.

Pots and Pans — New heavy-duty commercial cooking equipment will be introduced by HOTPOINT, INC., Chicago, at the National Restaurant Assn. convention there.

Bomb Production—A contract to produce napalm (fire) bombs has been awarded to AMERICAN STOVE CO., St. Louis, by Air Materiel Command, Wright-Patterson Air Force Base, Dayton.

Added Facilities—Construction on additional facilities for the B. F. GOODRICH CO.'S Research Center has been started.

New Offices — LAUBE STEEL CO., has established new offices at 1100 S. Kostner Ave., Chicago.

Contract Award—RUST ENGINEERING CO., has the contract for concrete and excavation work involved in construction of No. 4 blast furnace of the Woodward Iron Co., Woodward, Ala.

Insulation Plant — SOUTHERN ZONOLITE CO., Birmingham, has begun making vermiculite insulation. The ore, a form of mica, is exploded in a kiln. The product is used in insulating material, plaster and concrete products.

Stock Issuance — FAIRCHILD CAMERA & INSTRUMENT CORP. has filed a registration statement with the Securities & Exchange Commission for issuance of 69,406 shares of common stock. Proceeds will be used to help finance construction of its new plant at Jericho, L. I.

War Material — A $5,000,000 Army contract for the production of large caliber steel cartridge cases for ammunition has been released to the Chicago plant of the Ingersoll Products Div, of BORG-WARNER CORP.

Royalties — The first Marshall Plan guaranty contract covering European royalty payments for use of American patents and processes has been signed with GARDNER - DENVER CO., Quincy, Ill. Involved on the European end is Maschinen Fabrik A. Beien, Herne, Germany.

are bleeding their resources while waiting for more metal for peacetime use. If present estimates of essential needs aren't inflated, they'll wait in vain. "An open-end CMP for aluminum is already academic," commented one aluminum official.

Steel people see their "free" market tonnage shrinking away to 25 pct or less of total output. Their dislike of any control which isn't absolutely necessary causes them to give lip service to the open-end plan. But privately they don't think it will work.

They don't relish the job of trying to keep their customers happy with the shrinking tonnage still under their control. There are bound to be complaints. Maybe they'll have to make another trip to Washington as whipping boy on steel distribution. But they've been through that before—and they fear controls more.

Steel, aluminum and copper producers generally feel that defense and "essential" civilian requests for metal are greatly inflated. That it will take very determined and courageous action by those in charge of squeezing out the hot air to make actual allotments under CMP close to realistic needs.

Abandon Detroit Mill Plan

Cleveland—Gibraltar Steel Corp. has abandoned plans to build a $100 million fully integrated steel plant in the Detroit area because of the large amount of new steel capacity now under construction.

Cyrus S. Eaton, board chairman, said here that new steel capacity being created and under way and fully financed should be ample for requirements.

See Some Steel Price Adjustments

Albany—The question of steel price increases was broached by David F. Austin, executive vice-president of U. S. Steel Corp., at a meeting of the Eastern New York Purchasing Agents this week.

Mr. Austin intimated the gov-

ernment Office of Price Stabilization is considering an order which would permit price adjustments on steel in certain cases.

Pointing out that costs in some instances justify nonuniformity of prices, Mr. Austin pointed to marginal facilities which must be operated to maintain peak production.

"Even the most modern mill may be classified as marginal when directed by government to produce products for which the unit was not originally designed," Mr. Austin said.

Electric Furnace Rush Has Its Problems

Major project coming . . . Some plans await financial arrangements . . . Capacity may top 9 million tons by end of '52 . . . Scrap and power problems to increase—*By John Delaney.*

Pittsburgh — New electric furnace steelmaking capacity is springing up all over the lot. A major project will be announced shortly. Others are in the planning or talking stage. Some hinge on the outcome of financial negotiations, including government loans.

Electric furnace capacity may reach—even exceed—9 million tons by the end of 1952, some authorities believe. This would be a 20 pct increase over present capacity of 7.5 million tons, a 462 pct rise over 1939 capacity of 1.6 million tons.

Waiting for CMP—Electric furnace builders are swamped with work. Trouble is everyone wants his job done yesterday. To add to their woes, the builders are having trouble obtaining materials—transformers, steel, and copper being the most critical. They are hopeful that CMP will alleviate their problems.

The tremendous growth of electric furnace capacity has aggravated the industry's scrap problem and has worried power company executives.

Scrap supply is already tight. It will get tighter. Electric furnaces will sharpen the competition for heavy melting and low phos grades. Once scrap price controls are removed, steel producers fear prices will skyrocket — assuming industry operating rates continue at high levels. High scrap prices would pose a most serious problem.

Scrap is Lighter—Another scrap problem is that of density. Emphasis on production of lighter forms of steel has brought about a steady decline in the average weight per cu ft of scrap. Where the average was once 90 to 100 lb per cu ft, the average today is 30 to 40 lb.

Up the Ladder

Pittsburgh—Growth of electric furnace steelmaking capacity—in millions of tons:

1939	1.6
1941	2.6
1946	5.5
1949	6.1
1950	6.8
1951	7.5
1953	9.0*

* Probable.

Relations between power companies and electric furnace operators become strained at times. Villain in the piece is the big furnace —50 and 75 tonners—and its heavy power requirements during the meltdown. Also, many shops are melting carbon grades where the emphasis is on tonnage output—quick meltdown, short refining period. This requires large blocks of power with a resultant strain on capacity.

Power Problems — Some power companies now require the furnace operator to install special condensers costing more than the furnaces themselves to minimize the kickback on power lines during peak demand. Others include severe penalty clauses in contracts for light flicker caused by sudden increases in consumption. The power companies are asking producers to stagger the meltdown periods in multiple-furnace shops to minimize the strain.

Also worrying the power companies is the increasing tendency toward building electric furnace shops where the available power systems are not heavy enough to carry the peak load. Generating capacity in some areas is limited, notably in the West and in some parts of the South. Supplying power for an electric furnace operation is a new experience for some power companies.

Companies planning electric furnace capacity increases include Allegheny Ludlum Watervliet, N. Y. (80,000 tons); Armco; Sheffield Steel Co., Kansas City (150,000 tons); Atlantic Steel Co., Atlanta (100,000); Bethlehem Steel, Los Angeles (60,000); Copperweld Steel Co., Warren, Ohio; Crucible Steel, Midland, Pa. (80,000); Green River Steel Corp., Owensboro, Ky. (200,000); Northwestern Steel & Wire, Sterling, Ill.; Timken, Canton, Ohio (275,000); Universal-Cyclops, Bridgeville, Pa. (16,000); West Virginia Steel & Mfg., Huntington, W. Va.; Tennessee Steel Co., Oneida, Tenn. (100,000); McLough; Connors Steel.

Baltimore Ore Pier to Open

Baltimore, Md. — Pointing to huge shipments of foreign ore in the future, formal opening of Baltimore & Ohio Railroad's new $5 million ore pier will take place on May 15. It is designed to unload the largest ocean ore hauling ships within 24 hours.

Ore will be taken from ships' holds by 15-ton buckets. After automatic weighing, ore will go into hopper cars. Corners of the holds will be cleaned out by smaller buckets which are interchangeable with the larger ones. The pier will be able to unload ore from ships to cars at a rate of 10 million tons a year.

BITS AND BRIEFS

By Bill Packard

Explanation of a MacArthur supporter: "It is not so much that MacArthur is right, it is just that Truman is wrong—and overmatched, again" . . . Rem-Cru Titanium, Inc., produced its first melt of titanium at Midland, Pa., last week. Firm is jointly owned by Remington Arms and Crucible Steel . . . **Jet-propelled miniature auto racers roared through Detroit's Rackham Bldg. banquet room last week in competition sponsored by Society of Automotive Engineers. Who says engineers don't have fun?** . . . American Tool & Supply's subsidiary Marsam Corp. expects to begin operating steel pickling line in McKeesport within 2 months. Operations to be housed in plant leased from Pressed Steel Car Co. . . . Britain receiving her biggest shipbuilding order—46 new oil tankers totaling almost 100,000 tons at $126 million—from Royal Dutch Shell. Thirty-one of ships to be built in Scottish, Irish and Northern England shipyards; the balance in Holland . . . **General Electric President Ralph Cordiner tells stockholders GE has 4-year, $350 million expansion program to match $425 million expansion of past 5 years** . . . Television script writers and imitators having a field day recreating Senate Crime Hearings for commercial whodunits. Moral: Mistaken shortcut to sure-fire success—copy a best seller . . . Avco Mfg. Corp. planning to operate recently acquired subsidiary Horn Mfg. Co. under its former name. Facilities for making farm machinery to be expanded . . . Blaw-Knox order backlog increased from $51.1 million at first of year to $98.3 million by end of March. About 40 pct consists of ordnance, engineering and construction contracts for government, reports President William Witherow . . . **Tip to soft lines: Female welders, crane operators and what have you are on their way back to the job. This means more green stuff for more families** . . . Speaking of money, the House has okayed a jump in fines for anti-trust violations of from $5000 to $50,000 over little opposition. Senate likely to go along with increase . . . Westinghouse rushing new Baltimore plant to make automatic computers to direct gun and rocket fire, guided missiles, radar and automatic pilots.

Foundry Iron Picture Darkening in East

Pig, scrap and ferroalloys all getting scarcer . . . Imports dropping after record year . . . Many furnaces switching to basic iron . . . New furnace, CMP needed.—*By Bob Hatschek*

Philadelphia—Foundrymen are running into an ever tightening pig iron supply situation. Many in this area have been forced to turn down orders for lack of metal when they had plenty of room to take on new work and some have cut back operations. They ask what they are to do if they can't get pig. Here are the stock answers: "Use scrap, get foreign iron or use more ferroalloys."

None of these answers is satisfactory. Imports are dropping after a record year, and scrap and ferroalloys are also in short supply and getting tighter. Some foundries are already using only 10 pct pig. One is reported to have leaned the pig right out of his melt. And the eastern foundry iron situation is in for a few more bad jolts in the near future.

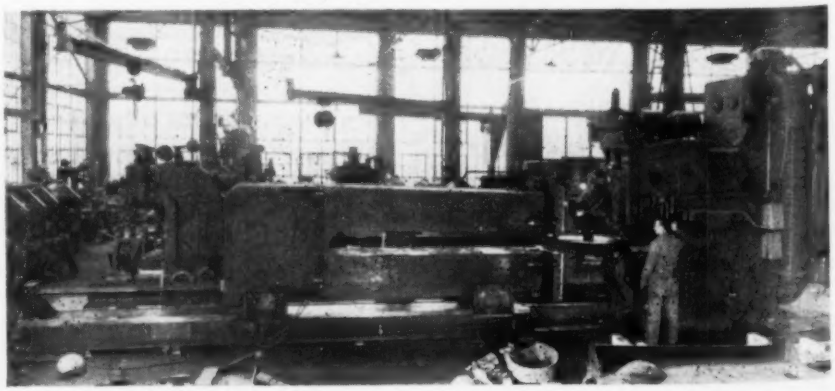
Big Switch to Basic—Wickwire Spencer, at Buffalo, has diverted its flow of foundry iron to basic and is shipping that to Claymont Steel Corp., now that they are both subsidiaries of the same company.

Alan Wood's new openhearth is scheduled to go into production about the end of May or the beginning of June. This means that much of their excess blast furnace capacity will be switched over to feed the new steel producer.

The Chester furnace is slated for production again before the first half ends. But this too will be used in making steel at Central Iron & Steel and Phoenix Iron & Steel.

Hanna Furnace Co., which had been doing an admirable job in supplying foundries in the district with silvery iron as well as No. 2 foundry, is converting its silvery furnace to basic iron. They want to stockpile basic iron for Great Lakes Steel against the time when the silvery furnace and one other at their Buffalo works are

SHEAR FOR FRANCE: The largest assembly of its kind ever made is shown being machined and assembled in the Chicago plant of Kling Bros. Engineering Works, Chicago. This Kling #100 rotary shear is capable of shearing plate up to 1-in. thick. A clamping attachment permits the cutting and flanging of circles up to 17 ft. in diameter. Unit was shipped to Usines Schneider Creusot, French munitions maker, for use in fabricating heavy steel plate.



blown out for relining—that will be soon.

Foundrymen are wishing in vain that a merchant furnace existed somewhere around Philadelphia. One could be built but it would take time and money. Also, in slack steelmaking times, such a furnace would be competing with excess blast furnace capacity of the steel companies.

CMP Would Help—Foundrymen think a more immediate solution, though not completely adequate, would be to set up a controlled materials plan for pig iron—but quick. While main government emphasis has been on steel, the foundry industry is also vital to the nation's defense and more iron is needed to keep this industry alive and healthy.

Appliance Makers Push Output to Beat CMP

Output high despite present buyers' market . . . Few models have been dropped . . . See future sellers' market . . . Nonferrous metal shortages widely felt—*By Bill Olson.*

New York — Most home appliance makers, betting on a future sellers' market, are pushing top production of all models before CMP lowers the boom.

Credit restrictions, consumer resistance and all-out production in the past 6 months have bulged warehouse walls. Large inventories at retail and wholesale levels have merchandisers wailing. But few producers are willingly cutting their selling line or output in spite of shortages of steel and nonferrous metals.

Consumers will continue to have a wide choice of models in home appliances. Appliances generally are designed with an eye to competition. Manufacturers, reluctant to lose a competitive position, prefer to keep all models going. They are quick to note a growing bulge in consumer purse-pockets.

Simplification Program — One outstanding appliance maker however has reduced its lines and concentrated production on most popular numbers in all price ranges.

Range output was cut on three models and three refrigerators were dropped. Output was lowered on two of five vacuum cleaner models. Four electric housewares items were discontinued. Success of this program may start a trend.

This program permits continued high-level production on popular models. Success of the program depends on availability of materials and government controls. Minor design changes have been limited to mechanical improvements.

Nonferrous metal shortages are having more effect on production than steel supplies. One manufacturer has about given up production of wringer washing machines and dish washer conversion units. Reason is the lack of aluminum and bronze parts. Other appliance makers are experiencing similar difficulties.

A low 1950 production schedule hurt another appliance maker. Ironing machines have been practically eliminated for lack of materials. Production of this item during the first quarter of 1950 was small. Most sales were from inventory made in 1949. This resulted in a small steel allotment based on purchases during the first half of 1950.

Sales Rule — Refrigerator producers in the Detroit area have dropped a few models. But the profit and sales position on them has been a controlling factor. Some changes in schedules are being made to accommodate purchasing departments, although this is the exception rather than the rule.

Radio and television manufacturers have generally felt the shortage of nonferrous metals more fully than other appliance makers. This industry also felt the impact of consumer resistance more fully than others.

One of the country's top producers, however, is continuing high production of all models. Shortages are being met by systematic substitutions of materials. This program has cut alnico content of speakers 70 pct; steel, 35 pct, and brass 90 pct. Two developments, if applied to the industry's television production, will cut cobalt content in the average receiver by 90 pct.

Steel to be Sheltered from Sulfur Crisis

NPA to show steel industry the same consideration as in World War II . . . So far supply has been adequate . . . Pickling use may fall with switch to plates—*By Ted Metaxas.*

New York—Steelmakers need not look to their pickling tanks with apprehension of cutbacks in sulfuric acid. The shortage is a worldwide blight on production but the steel industry will be sheltered by Washington. It was shown the same consideration during World War II.

The stopgap allocation of sulfuric acid in 11 western states was the hasty prelude to a nationwide order. With demand outrunning production and increasing with the defense program, the sulfur situation became desperate. As the world's foremost producer and exporter, the U. S. also cannot ignore cries of distress from Britain. New sulfur sources are being investigated but will not yield immediate relief.

Not Affected—The steel industry has been one of the fortunate few able to get adequate supplies of sulfuric acid. One sulfur producer told THE IRON AGE that he did not know of one instance where steelmaking was slowed be-

cause of scarcity. He was not able to say the same for other industries—paper, rayon, etc.

Another producer said that "importance of the steel industry to defense will assure it of 100 pct of its needs." Steel's supply so far has been adequate despite a government order last fall which instructed producers to reduce shipments by 15 to 20 pct. The steel industry's collections of DO's have been heavy. With these, acid procurement may have been tricky but not difficult.

Metallurgy ranks fifth in the roster of sulfuric acid consumers. In 1950 steelmaking took 620,000 tons of 100 pct sulfuric acid out of a total of 12 million tons produced.

A "Must" Byproduct — Steel must have sulfuric to remove scale from flat-rolled products (pickling) and to treat ammonia gas freed from burning coke. The gas cannot be liberated and sulfate of ammonia must be produced as a coke oven byproduct.

Some unofficial reduction in the steel industry's use of the acid for pickling is expected. War's need for armor plate quickly put all capacity to work and then encroached on mills formerly rolling sheets and strip for consumer durables. The trend to more plate and less sheet is intensifying.

An acid manufacturer illustrated this: Ordinarily, a midwestern steelmaker used 45,000 annual tons of sulfuric. But in World War II he leaned more heavily to plate—with less surface area to be pickled—and cut his consumption to 7000 tons yearly.

Steel mills can help other industries suffering in the sulfur crisis by using pickling baths to the limit. Ordinary practice is to add new acid until so much ferrous sulfate gathers as to form crystals. But sometimes fluid is run out for convenience's sake to conform to quitting time and end of the week. Mills are also discovering that enforced stream anti-pollution laws can yield byproduct income with processing of waste pickle fluid (THE IRON AGE, Mar. 8, 1951, p. 88).

Sulfur producers have responded to the shortage call to action. They are exploring for new deposits in the sulfur states, Louisiana and Texas. Canadian geologists will drill in Alberta. Mexico was granted an Export-Import loan to increase sulfur production.

Rise in Cost? — Research to separate sulfur from natural gas and oil is being conducted. The hunt has fanned out everywhere —even to underwater deposits. Sulfur is not rare but it must be found in large quantities to make exploitation economically feasible. Thus a rise in cost of the acid may come when producers start mining "less desirable" areas.

Shortage Sinks Peak Fastener Output Hopes

Demand climbs to record but manufacturers face cutbacks in production . . . Raw materials at lowest point . . . Biggest scarcity is in carbon steel products—*By Bill Lloyd.*

Cleveland — While demand for bolts, nuts, screws and rivets is soaring to an all-time high, producers face the prospect of reduced operations as raw material inventories dropped to the lowest point in the history of the industry this week.

Some fastener makers have already reduced their work week from six 10-hr days to five 8-hr days. Further reductions are seen.

One producer, with plants in Cleveland and Chicago, has been working at about 50 pct of capacity for the past 2 weeks.

Stocks Down 35 pct—Producers have practically shipped out everything and the combination of raw material and finished goods inventory is down 35 pct for the industry since Aug. 1, 1950.

"All right Gene Krupa, never mind the hot licks."

One executive said, "If we continue to get steel as we have for the past 3 months, we will be down to 3 or 4 days a week in the near future. We had much less trouble getting steel in the last war.

Material permitting, the fastener industry this year would probably have reached a new peak in shipments, topping the shipments of the best years of World War II and an estimated 50 pct higher than 1950, when shipments topped a million tons.

The shortage of steel, wire, rods and bars, has become so acute that one producer, when notified recently that some steel was being shipped to his plant, asked the mill to hold it on the dock and sent his trucks for it.

Carbon Steel Shortest—Producers are trying to buy tonnage wherever they can get it, regardless of freight. Some have bought foreign tonnage. Nonferrous materials, alloy, and stainless are also in short supply, but the big shortage is in carbon products.

Korea found the fasteners industry already loaded with orders. It increased the demand for headed and threaded products anywhere

Turn to Page 123

SUBCONTRACTORS:

CAN YOU MAKE IT?

New York — Plans to bring prime contractors and potential subcontractors together at several new exhibits are being readied by the U. S. Air Force.

New York's second exhibit will be held at Grand Central Palace May 8 to 10. The show, sponsored by the Air Force and the Navy, will feature the electronics industry. Impressed with the success of an earlier show, large makers of radio and electronic equipment will take part.

A joint exhibit sponsored by the armed services will be held at the Commonwealth Armory in Boston May 15 through 19.

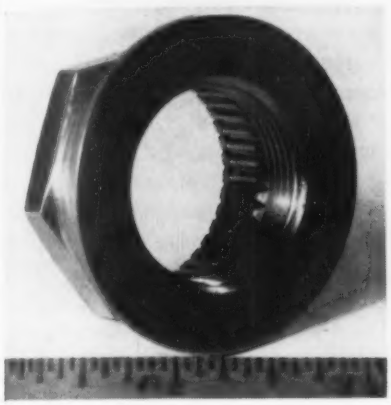
Businessmen in the Chicago area will have an opportunity to meet prime contractors in an exhibit at Navy Pier Apr. 30 to May 9. The movement to get prime and subcontractors together is evident.

PRIME CONTRACTORS

Send a picture or simple inked sketch of the part to be subcontracted, with the part number, approximate size, tolerances, material, machine work needed, quantity required and address to:

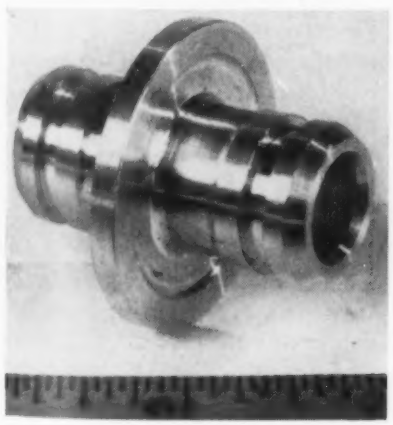
"CAN YOU MAKE IT?" EDITOR
THE IRON AGE
100 EAST 42ND STREET
NEW YORK 17, N. Y.

Small manufacturers interested in obtaining defense work are urged to contact the prime contractor directly.



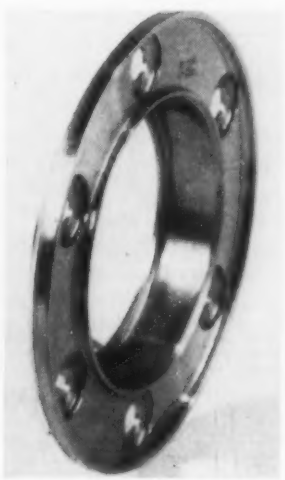
Iron Age SC 21

Machine from AMS 6322 bar stock.
Hardness: C19-26.
Finish: 50 microinches, cadmium plated.
Tolerances: 0.002 in. to 0.020 in.
Requirements: 500 per month.
Part No.: 134745, Subcontracting Dept., Wright Aeronautical Corp., Wood-Ridge, N. J.



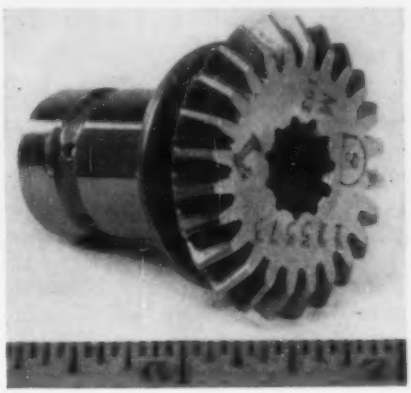
Iron Age SC 23

Machine from AMS 4150 bar stock.
Maximum size 2 in. x 1¾ in.
Tolerances: 0.002 in. to 0.020 in.
Finish: 50 microinches in grooves.
Heat treatment: None.
Requirements: 500 per month.
Part No.: 134404, Subcontracting Dept., Wright Aeronautical Corp., Wood-Ridge, N. J.



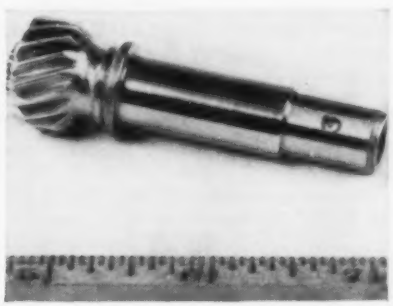
Iron Age SC 22

Machine from AMS 5024 bar stock.
Heat treating: None.
Tolerances: 0.002 in. to 0.020 in.
Finish: 32 microinches on ID.
Requirements: 500 per month.
Part No.: 126705, Subcontracting Dept., Wright Aeronautical Corp., Wood-Ridge, N. J.



Iron Age SC 24

Machine from AMS 6260 forging.
Hardness: Core, C32-40.
Case, 30N77-80.
Finish: 8 to 16 microinches; 32 microinches on teeth.
Tolerances: Spline, involute form 0.002 in. Gear, zerol bevel.
Requirements: 500 per month.
Part No.: 115575, Subcontracting Dept., Wright Aeronautical Corp., Wood-Ridge, N. J.



Iron Age SC 25

Machine from Nitralloy AMS 6470 bar stock.
Hardness: Core, Brinell 241-285.
Case, 15N92 minimum.
Finish: 8 to 16 microinches.
Tolerances: OD 0.002 in., other dimensions 0.002 in. to 0.020 in.
Requirements: 500 per month.
Part No.: 427061, Subcontracting Dept., Wright Aeronautical Corp., Wood-Ridge, N. J.

CONTROLS DIGEST

Industry Controls This Week:

NPA Orders

M-7, Aluminum amendment—Permits use of aluminum at 50 pct of base period monthly average by some consumer goods manufacturers during May and June. Effective Apr. 20.

M-45, Sulfuric acid—Schedule 3 is a limited allocation order on use of sulfuric acid in 11 Western states. NPA authority is required for use or delivery of more than 60 tons a month. Effective Apr. 18.

M-58, Binder, baler twine—Limits inventories. Effective Apr. 19.

OPS Orders

CPR 5, Scrap amendment—Permits some increases in preparation fees, places railroad cast iron scrap on the same shipping point pricing basis as other cast iron scrap, permits some alloy content premiums. Effective Apr. 24.

Dairy Equipment Seeks NPA Help

Washington — Stainless steel supplies for pasteurizers, bottling equipment and other dairy equipment will probably be programmed under the coming CMP.

Industry representatives have been besieging NPA for help on the basis that many mills and warehouses have been turning them down because of a pile-up of rated orders.

The control agency hopes to avoid providing such a program and is making a study of melt schedules with an eye to changes which might result in more flexible high alloy schedules.

OPS Clamps Tougher Price Order on Manufacturing Field

Washington — Steel and other manufacturing industries were brought under new and tougher pricing regulations this week.

The government issued two new price orders for producing industries. One, which provides specific control over manufacturers prices, replaces the general price freeze of last January. The other forbids manufacturers to raise prices if they are making 85 pct or more of their average profits for the three best years from 1946 through 1949.

Coal, steel, and metals all are affected by the price-profit freeze. In other fields, including manufacturers, wholesalers, and retailers, it will go into effect as soon as adjustments have been made through interim price control orders superseding the Jan. 25 price freeze.

The 85 pct profits standards will be based on industry earnings before Federal income and excess profits taxes and after normal depreciation charges, with adjustments for changes in industry's net worth since 1949.

Not to Individual Firms—The standards apply to industry-wide prices and profits, not to individual companies. If a firm's profits are below the industry average, it will have to catch up by increased efficiency, not by raising its prices.

About 75,000 firms are expected to be affected by the manufacturers price regulation (Ceiling Price Reg. 22). Price Stabilizer Michael V. DiSalle expects "some increases and some decreases," although the general effect will be to roll back manufacturers' prices.

No company may increase its prices without giving the Office of Price Stabilization 15-days notice. During this period, OPS will decide whether or not the proposed price hike is waranted. CPR 22 becomes effective May 28.

Among the cost increases which may be included by manufacturers are all wage increases from June 24, 1950, through Mar. 15, 1951.

DiSalle is expected to issue a new regulation covering sales of machinery and machine tools within a few days.

Bus, Trolley Makers Get Relief

Washington — Bus and trolley makers have been granted temporary relief from aluminum and copper limitations during the second quarter. The NPA order permits manufacture of 2000 buses and 317 street cars, trolleys and rapid transit cars.

Aluminum Order M-7 Relaxed

Washington—NPA last week relaxed its aluminum order (M-7) to permit manufacture during May and June of more than 200 civilian-type products. Production of automobile trim and hundreds

Defense Contracts to Metalworking Industry

Selected Contracts, Week of Apr. 23, 1951

Item	Company
Pump	Pesco Products, Bedford, Ohio
Generator	Westinghouse Electric Co., Philadelphia
Oscilloscope	Lavoie Lab., Inc., Morganville, N. J.
Snow plows	Gledhill Rd. Machinery Co., Galion, Ohio
Spare parts	North American Aviation, Inc., Los Angeles
Aircraft kits	Boeing Airplane Co., Seattle
Machinery & equipment	GM Corp., Milwaukee
Machinery & equipment	Utica Drop Forge & Tool Corp., Utica, N. Y.
Machinery & equipment	Consolidated Vultee Aircraft Corp., Fort Worth, Texas
Integral buses	Southern Coach Mfg. Co., Inc., Evergreen, Ala.
Inverters	Jack & Heintz Precision Industries, Cleveland
Truck	International Harvester Co., Washington
Truck	GM Corp., Detroit
Rack	M-N Metal Products Corp., Hazel Park, Mich.
Transmission	Cadillac Motor Car Div., GMC, Detroit
Transmission	Allis-Chalmers Mfg. Co., Milwaukee
Extinguisher	C-O Two Fire Equipment Co., Newark, N. J.
Valve ass'y.	Vought Aircraft Div., United Aircraft Corp., Dallas
Tractors	R. G. Letourneau, Inc., Peoria, Illinois
Cannon parts	Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.
Cannon parts	General Slicing Machine Co., Walden, N. Y.
Altimeter	Radio Corp. of America, Camden, N. J.
Fuel tank body	Butler Mfg. Co., Kansas City
Bus	Kenworth Mtr. Truck Corp., Seattle
Trucks	Ford Motor Co., Washington
Radio	Hallicrafters Co., Chicago
Tool equipment	Stanley Knight Corp., Chicago
Cylinders	Pressed Steel Tank Co., Milwaukee

of aluminum accessories was to have ended May 1 under an earlier NPA order.

The amendment, effective Apr. 20, permits producers and assemblers to use during May and June 50 pct as much aluminum as consumed in the average month of the first half of 1950. Manufacturers may continue until May 1 to use 65 pct of their average monthly base period consumption.

Freight Absorption

Washington — Legislation to permit "good faith" freight absorption was approved this week for Senate debate.

Under the new proposal to resolve the 3-year-old controversy, manufacturers may lawfully absorb freight charges when necessary to meet the low prices of competitors.

President Truman vetoed similar legislation last year.

More Steel for Farm Implements

Chicago—Mills were notified today of an increase in the percentage of steel products set aside for the agricultural implement program for June. The lead time for them to place orders for June has been extended until Apr. 30.

Percentages are:

Semi finished steel	1 pct
Wire rod	1.5 pct
Heavy structurals	1 pct
Plates	1.5 pct
Hot-rolled bars, including light shapes	7 pct
Standard pipe	1 pct
Mechanical tubing	4.5 pct
Drawn wire	1 pct
Hot-rolled sheets	2 pct
Galvanized sheets	3 pct
Cold-rolled sheets	1 pct
All other coated sheets	1.5 pct
Hot-rolled strip	2 pct

Note—This is on DO 87 only.

Favors Mark-Up-Over-Cost

Washington—Price control over oil pipe should take the form of a mark-up-over-cost regulation rather than dollars-and-cents ceilings, the Office of Price Stabilization was told.

Charles Potter, OPS metals consultant, said industry representatives "generally" felt existing practices regarding mark-ups-over-cost should be continued in any forthcoming regulation.

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SAN FRANCISCO —101 Beverly Street
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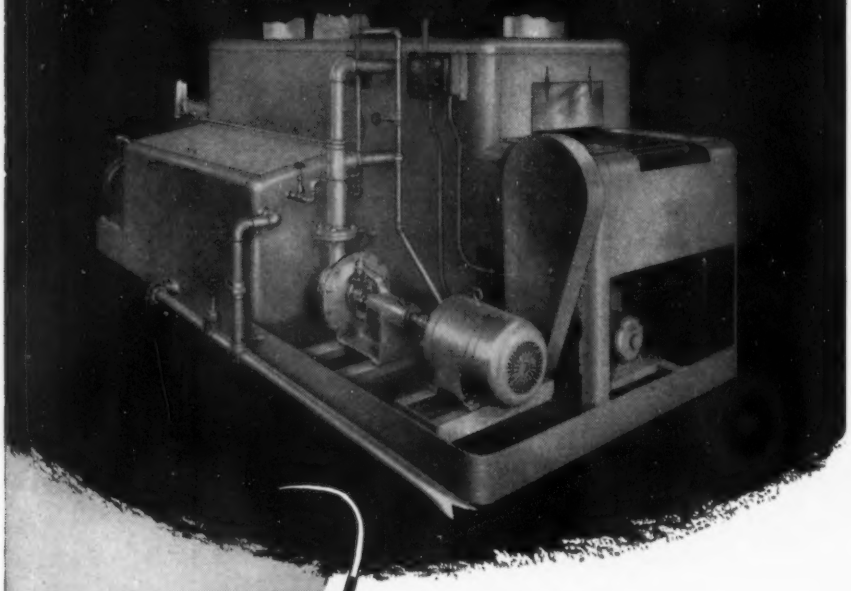

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June Steel Allotments Take 1.4 Million Tons for Program

Washington—Approximately 1.4 million tons of finished steel have been allocated for freight cars, locomotives, maritime and 20 other defense supporting programs for use in June.

July and later requirements will be handled by CMP which goes into effect July 1.

Steel has been alloted to build 9150 freight cars, 850 tank cars, 320 diesel and five steam locomotives, and 10,800 tons have been alloted for construction of Canadian locomotives and freight cars.

The maritime ship program provides for initial construction of 25 fast freighters. In a related program, another 15,000 tons of steel will be set aside for the hulls of 15 Great Lakes vessels.

Steel Allocations for June in tons:

	June	May
Freight car construction, repair	308,000	....
Bureau of Public Roads	151,000	151,000
Oil well pipe	140,000	141,750
Heavy power equipment	95,000	95,000
Defense Electric Power Administration	90,000	90,000
Steel containers	66,000	66,000
ECA tinplate	45,000	....*
Oil discovery, development	34,000	....*
Maritime Administration	31,000	18,700
School construction	25,000	....*
Mining machinery	20,000	....*
Hospital construction	16,500	....*
Great Lakes vessels	15,000	13,300
Canadian freight cars	8,000	7,400
Canadian Great Lakes vessels	2,240	1,850

*Program started in June.

Granite Steel Forms Granco

Granite City, Ill.—Granco Steel Products, a fully owned subsidiary of Granite Steel Co., has been organized to manufacture steel products. J. N. Marshall, Granite Steel president, said Granco was formed to provide the parent firm with an independent subsidiary to make construction and consumer goods which would have been manufactured and sold through outside agencies.

Work Opens on Republic Ovens

Birmingham — Excavation began recently for the 63 new coke oven plants to be built at the East Thomas plant of Republic Steel Corp. Relining of the No. 2 blast furnace, down for several months, is expected to begin in June.

Canada Scrounges for Steel; No Improvement Expected Until '52

Defense, nondefense needs will take 5½ million tons . . . Seek U.S. relief.

Toronto—Canada's steel shortage is becoming more critical. No improvement is expected until the latter part of 1952 when new capacity enters production.

Growing obstacles in filling nondefense needs are expected as defense priorities take a larger share of steel output.

Much Canadian steel output will be scheduled by the third or fourth quarter of 1951. Eventually a permit will be required for the use of steel in any type of construction.

Defense and nondefense needs will take 5½ million tons of steel this year. Canada is now producing 3 million tons per year. Last year a half million tons were imported from the United States, and additional tonnage from Europe.

Requirements — Canada is expected to ask the United States for 2 million tons of steel for 1951. Tonnage requirements already include: Oil industry, 200,000 tons; Quebec Hydro, 75,000 tons; Ontario Hydro, 65,000 tons; Steel Co. of Canada expansion, 29,000 tons; Algoma Steel expansion, 12,000 tons; Consolidated Smelters, 45,000 tons.

Ship and car programs and factory expansion will require additional tonnages. Toronto expects to spend $78 million for steel for factory expansions.

Canadian business is at record levels and few shutdowns have resulted from lack of materials. European steel imports were a relief, but cost buyers almost twice the domestic price.

Copper and brass are not yet under direct control, but since Jan. 1st, monthly stock reports have been required.

Materials in short supply include steel, pig iron, aluminum, nickel, monel, electric motors.

THOMAS Flexible ALL METAL COUPLINGS

FOR POWER TRANSMISSION • REQUIRE NO MAINTENANCE

Patented Flexible Disc Rings of special steel transmit the power and provide for parallel and angular misalignment as well as free end float.

Thomas Couplings have a wide range of speeds, horsepower and shaft sizes: ½ to 40,000 HP — 1 to 30,000 RPM.

Specialists on Couplings for more than 30 years

PATENTED FLEXIBLE DISC RINGS

BACKLASH FRICTION WEAR and CROSS-PULL are eliminated
LUBRICATION IS NOT REQUIRED!

THE THOMAS PRINCIPLE GUARANTEES PERFECT BALANCE UNDER ALL CONDITIONS OF MISALIGNMENT.

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NO MAINTENANCE PROBLEMS.

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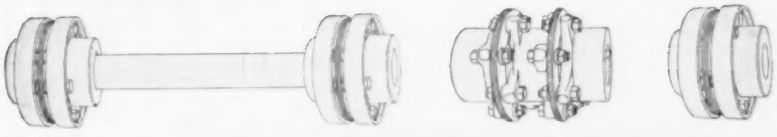
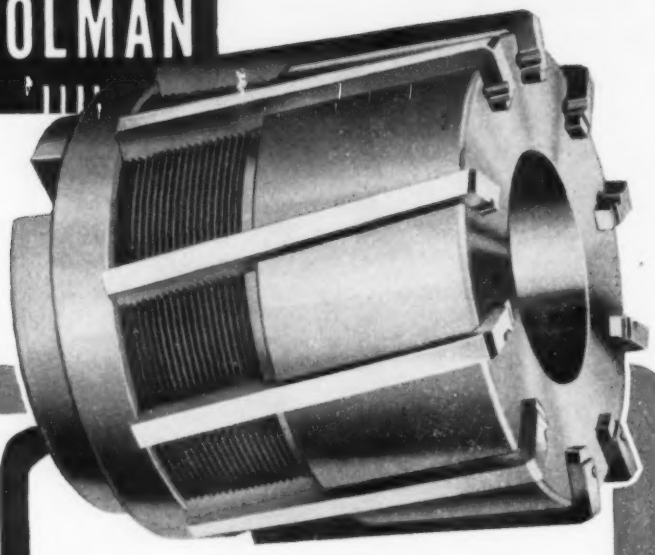
ALL PARTS ARE SOLIDLY BOLTED TOGETHER.



Write for the latest reprint of our Engineering Catalog.

THOMAS FLEXIBLE COUPLING CO.
WARREN, PENNSYLVANIA

BARBER COLMAN



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QUALITY REAMED HOLES
Plus
LOW MAINTENANCE, OPERATING COSTS

Pin and wedge design affords more blades per reamer diameter which in turn makes for better finish and maintenance of size. Easy adjustment, quick set-up and sturdy, non-shift blade mounting provide long economical operation.

AVAILABLE FROM STOCK FOR IMMEDIATE SERVICE

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594 ROCK STREET
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American Steel & Wire Co. Agrees to Pay Smog Suit Claims

Pittsburgh—American Steel & Wire Company has agreed to pay a reported $250,000 to settle 135 damage suits growing out of the Donora, Pa., smog disaster of October 1948. The company operates a zinc plant at Donora.

Suits for damages totaling $4,643,580 had been filed against the company. The actions contended that fumes from the zinc plant caused 22 deaths and property damage.

L. F. McGlincy, manager of Pittsburgh district operations for A. S. & W., said the company had the choice of expensive litigation or a settlement representing a small fraction of claims. He added that the settlement did not mean admission of liability, since the company was prepared to prove that the smog condition was due to freak weather conditions.

Locomotive Orders Hit Record

Washington—Class I railroads hit the record in the total of new locomotive power on the order books as of Apr. 1, reports the Assn. of American Railroads. On order were 1883 locomotives, consisting of 2420 power units. Complete locomotives awaiting delivery included 20 steam, eight electric, and 2392 diesel electrics.

NPA Farm Machinery Official

Washington—A. King McCord, president of the Oliver Corp., Chicago manufacturer of farm equipment, was named director of the Agricultural Machinery and Implement Div. of National Production Authority. He will aid in developing and administering programs to provide machinery for farm output.

Steel Forging Shipments

Washington — February shipments of commercial steel forgings totaled 129,000 tons. January shipments were 138,000 tons, and shipments in February 1950 totaled 93,000 tons.

Alcoa Gets I. W. Wilson As President; Roy Hunt Moves Up

Pittsburgh—I. W. Wilson, formerly senior vice-president, was elected president of the Aluminum Co. of America last week. He replaced Roy A. Hunt who, after 23 years in the presidency, was made chairman of the executive committee at a meeting of the board of directors.

I. W. Wilson

Leon E. Hickman, senior partner of the law firm Smith, Buchanan & Ingersoll, of Pittsburgh, was appointed vice-president and general counsel. Arthur V. Davis was re-elected as chairman of the board.

An alumnus of Massachusetts Institute of Technology, Mr. Wilson opened his Alcoa career in 1911, became general superintendent of the firm's reduction plants in 1921, vice-president in charge of operations in 1931, director in 1939, and senior vice-president in 1949.

Mr. Hunt, son of one of Alcoa's founders, was a machinist's helper at Alcoa's New Kensington, Pa., works in 1901. In 1914 he became general superintendent of Alcoa fabricating plants, director in 1915, vice-president in 1918, and president in 1928. Mr. Hunt is also a director of the Mellon National Bank & Trust Co. and vice-president of Carnegie Institute.

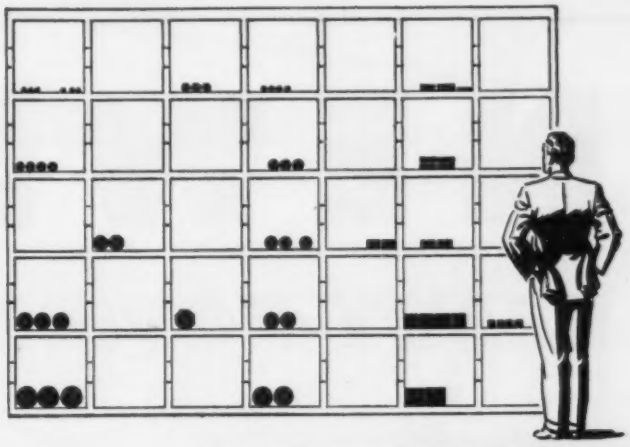
Lukens Adding New Facilities

Coatesville, Pa.—Contracts for a $4 million improvement program have been let by Lukens Steel Co. This is in addition to a previously announced $3 million improvement for centralized maintenance.

The program includes new facilities for finishing and heat treating. A new heating furnace will be added at the 120 in. mill.

OVER ONE HUNDRED YEARS OF CONTINUOUS SERVICE. ROUNDS, SQUARES, FLATS, HEXAGONS, OCTAGONS

BILLETS AND FORGINGS FOR PRODUCTION, TOOL ROOM AND MAINTENANCE REQUIREMENTS.



The present serious STEEL SHORTAGE

has reduced our warehouse stocks of HY-TEN and Standard alloy steels to a sub-normal level.

This inventory situation is, of course, very unsatisfactory but we are doing everything we possibly can to improve it.

Our aim is to allocate available stocks to our customers in the fairest and most equitable way possible.

D-O certifications on your warehouse orders will aid us greatly in supplying your alloy steel needs.

In the light of current conditions, we suggest that you put our metallurgical knowledge and experience to work for you.

It frequently happens that, when certain exact specifications are not available, our metallurgists can recommend entirely suitable substitute materials or alternate methods of manufacture and treatment.

Your nearby Wheelock, Lovejoy representative knows metallurgy. He stands ready to give you expert assistance in solving your problems.

Write today for your FREE COPY of the Wheelock, Lovejoy Data Book, indicating your title and company identification. It contains complete technical information on grades, applications, physical properties, tests, heat treating, etc.

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SANDERSON-NEWBOULD, LTD., MONTREAL

HY-TEN and AISI

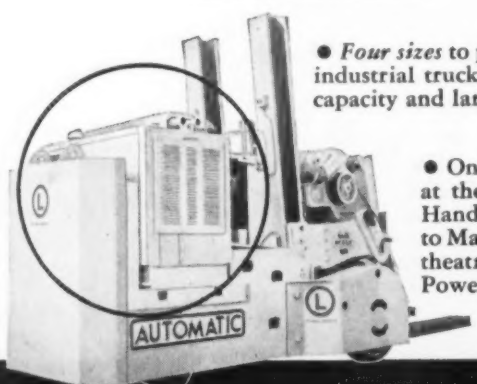
NEW!

READY-POWER

Diesel-electric units

FOR HEAVY-DUTY ELECTRIC INDUSTRIAL TRUCK OPERATION

• Featuring amazingly low-cost operation, long life and reduced maintenance.



• *Four sizes* to power electric industrial trucks of 6,000 lb. capacity and larger.

• On display for the first time at the 4th National Materials Handling Exposition, April 30 to May 4, International Amphitheatre, Chicago, Ill. Ready-Power Booths: 427-428.

The READY-POWER Co.

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NPA Official, Senator To Address Warehouse Assn. Meeting

Cleveland—Manly Fleischmann, Administrator of the National Production Authority, and Sen. Everett M. Dirksen (R.), Ill., will be the two featured speakers at the 42nd annual meeting of the American Steel Warehouse Assn., Inc., May 3 and 4 at the Drake in Chicago.

Walter S. Doxsey, ASWA president, said advance registrations are the heaviest in history. About 500 warehouse and steel mill executives are expected to attend the conference on industrial steel distribution.

Europe's '51 Steel Output

Geneva—European steel production in 1951, excluding Russia, may reach 55 million tons if raw material supplies are available.

Production during the 1950 fourth quarter was at the rate of 54,387,000 metric tons, according to the United Nations Economic Commission for Europe. Crude steel production for nine reporting countries was 60,680,000 tons during 1950. This was 10 pct above the 1949 production.

To Judge Oil Equipment Needs

Torrance, Calif. — Charles T. Reichert, division sales manager of the National Supply Co.'s Oil Field Machinery & Equipment Div., has been appointed chief of the drilling and production section of the Material Div. of Petroleum Administration for Defense. He will be instrumental in determining needs and allocations to oil equipment manufacturers.

Steel Cartridge Cases Contract

Chicago — The Chicago Ordnance District has awarded a $5 million order for large caliber steel cartridge cases to the Chicago plant of the Ingersall Products Div. of Borg-Warner Corp. About 30,000 sq ft of new construction is being planned by the company to fulfill the contract. The government will provide part

of the production facilities needed.

Although the manufacture of steel cartridge cases requires more operations than those of brass, the company thinks the resulting higher labor costs will be offset by the lower cost of steel.

Fasteners Fight Shortage

Continued from page 114

from 15 to 40 pct, depending upon the product and the plant. It also changed the industry's raw material requirements by increasing the proportion of alloy and stainless steel required.

Historically, the industry has cut up from 2 to 2½ pct of finished steel. Each ton is fabricated into an average of 50,000 pieces, chiefly on high speed automatic machines.

Main requirements of the defense program stem from the freight car program, aircraft and tank and automotive. The industry must also serve its other users, the automotive, agricultural, implement and home appliance industries and the jobbers.

Need 60-Day Stocks—In World War II, 66 pct of the industry's output went to defense needs and 34 pct went to civilian use.

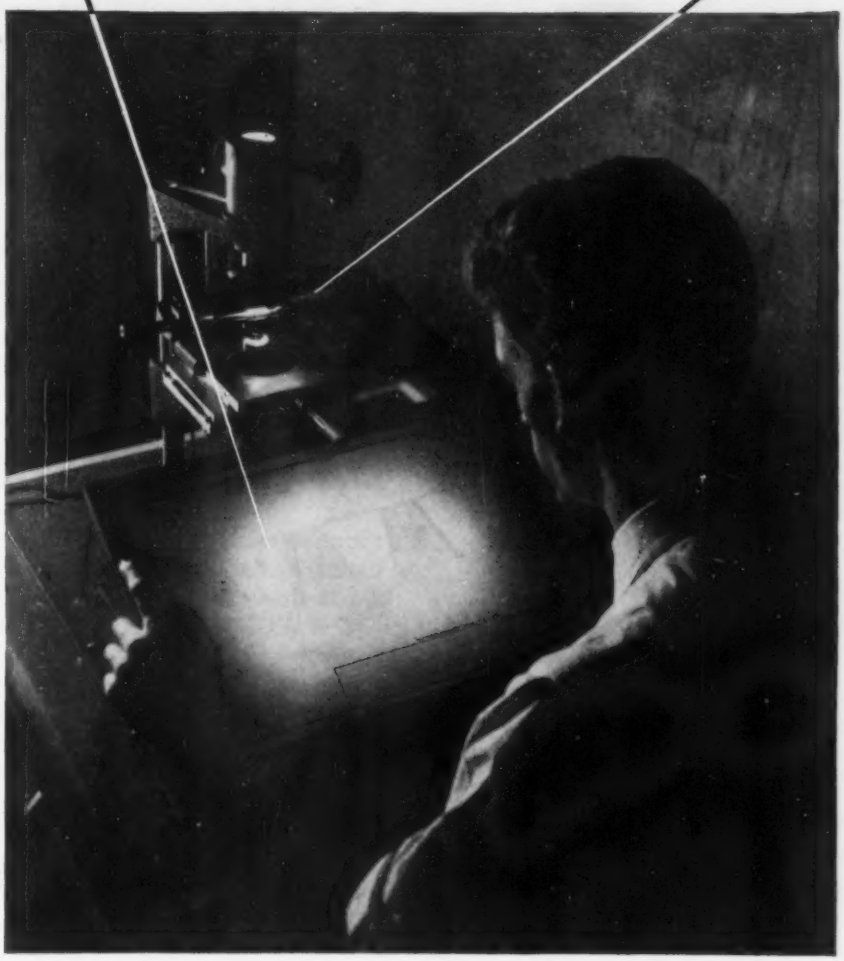
Now the shortage of steel is paining producers. To stay flexible, the industry needs about 60 days raw material and practically the same of finished goods. But today 30 days seems like a lot.

Backlog has been increasing faster than shipments, and some plants have 7 or 8 months business on their books, more than they had at the peak of the last war. About 50 pct of the new orders are rated, but rated orders for many plants have been nothing more than a hunting license for the required tonnage.

The industry expects to do better under CMP. But between now and July 1, the squeak will be a narrow one and producers who might have had the biggest year in their history will probably have to settle for their 1950 volume and if they're lucky, a little more.

Resume Your Reading on Page 115

ENTRANCE EXAM *to shipping department for Perkins custom-made Gears*



Checking tooth form.

• This is one of the many tests which Perkins Gears must pass prior to their admission into our shipping department.

• The variety and accuracy of the equipment used in our inspection department, plus the severity of the tests themselves, keep the number of gears returned to us by customers as "rejects" correspondingly low. The rigor of our inspection methods is, to us at Perkins, just a matter of plain ordinary horse-sense—a commodity which is plentiful in New England. We thus reject it as a virtue to be proclaimed from the housetops, and offer it to our customers as a normal part of our services: *The production of precision, custom-made gears.*

PERKINS MAKES TO CUSTOMERS' SPECIFICATIONS:
Helical Gears • Bevel Gears • Ratchets • Worm Gears • Spiral Gears • Spur Gears with shaved or ground teeth • Ground Thread Worms
IN ALL MATERIALS, METALLIC & NON-METALLIC

PERKINS MACHINE & GEAR co.
WEST SPRINGFIELD, Massachusetts

puttin's a breeze . . .
his mind's at ease

Yes sir, here's a chap that can really concentrate on a putt! He knows that a flash fire can't stop production at his plant . . . equipment, materials, buildings, and the lives of employees are fully protected with modern, approved C-O-TWO Fire Protection Equipment.

You, too, can have this same ease of mind about your factory, mill, warehouse, power station or research center. There are fire hazardous areas that particularly need C-O-TWO fast, positive fire protection: spray booths, dip tanks, solvent baths, electrical equipment enclosures, mixing vats, storage tanks, pump rooms, record vaults, store room, especially anywhere there's danger of flammable liquid or electrical fires. At many locations a C-O-TWO Combination Smoke Detecting and Fire Extinguishing System is a "must". The first trace of smoke in a protected area sounds an alarm . . . then fast, clean, non-damaging, non-conducting carbon dioxide blankets the fire, putting it out in seconds, before it spreads and causes extensive damage . . . no lingering odors, no water damage with carbon dioxide.

So, whatever your fire protection problem, let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire protection facilities now. Write us today . . . tell us about your particular fire hazards, our experience is at your disposal . . . there is no obligation of course.

TRADE MARK C-O-TWO REG. U.S. PAT. OFF.

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

Affiliated with Pyrene Manufacturing Company

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeez-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

STEEL CONSTRUCTION NEWS

Fabricated steel awards this week included the following:

2000 **Tons,** Anderson, Ind., mfg. bldg., Delco-Remy Div. of GM, to Indiana Bridge Co.

140 **Tons,** Columbia, Tenn., building for National Carbon Co., to Virginia Bridge Co., Birmingham.

Fabricated steel inquiries this week included the following:

4500 **Tons,** Chicago, Congress Street super highway, Allied Structural Steel Co., low bidder.

180 **Tons,** Maywood, Ill., bridge project 062-3434.3MFT Standard Paving Co., low bidder.

Reinforcing bar awards this week included the following:

1200 **Tons,** Dayton, National Cash Register Co., to U. S. Steel Supply Co.

.540 **Tons,** Chicago, Walton and Seneca Street apartments to Olney J. Dean Co., Chicago.

525 **Tons,** Chicago, Town House apts., to Olney J. Dean Co., Chicago.

450 **Tons,** Sterling, Ill., Northwestern Steel and Wire Co., to Truscon Steel Co.

450 **Tons,** Sterling, Ill., Northwestern Steel and Wire Co., to Ceco Steel Products Co., Chicago.

Reinforcing bar inquiries this week included the following:

1315 **Tons,** Chicago, Congress Street super highway route 131.

1100 **Tons,** Cleveland, engine plant.

275 **Tons,** Miami City, Ohio, Dettmer Hospital.

205 **Tons,** Chicago, Congress Street super highway storm sewers.

180 **Tons,** Midland, Mich., Dow Chemical Co.

150 **Tons,** Chicago, Congress Street super highway pumping T station

105 **Tons,** Chicago, extension to Lincoln Park.

Warn NPA of Engine Cutbacks

Washington—Production of marine and other heavy duty internal combustion engines is being cut by decreasing supply of steel, the Internal Combustion Engine Industry Advisory Committee told National Production Authority. NPA aid was asked.

Copper and zinc shortages sometimes bottleneck production but inadequate supplies of steel forgings and iron may reduce output if low stocks are depleted.

OPS Controls Bunker Coal Prices

Washington—Ceiling prices on coal sold as bunker fuel have been established by OPS.

The same base periods which govern coal for domestic use now apply to sales of bunker coal. The ceiling prices are based on the highest price charged for any size, grade, grouping or other classification of coal sold from July 1, 1948 to June 30, 1949.

American Tool and Supply To Install Pickling, Processing Line

Pittsburgh—American Tool and Supply Co. announces that it is installing a semi-continuous steel pickling and processing line in the former Pressed Steel Car Co. plant in McKees Rocks, Pa. Operations are scheduled to begin about June 15. Work will be done on a job basis.

Joseph Wagman, president, said that a subsidiary company, Marsam Corp., of which Marshall H. Wagman is president, will operate the plant. Samuel Rothman will be vice-president in charge of operations.

The pickling line will handle coils up to 48-in. wide, weighing 10,000 lb., and plates and sheets up to 60-in. x 144-in. Shearing, slitting, roller leveling and all other warehouse services will be available. The company has leased 70,000 sq. ft. for the operation.

Youngstown Welding & Engineering Co. is installing the pickling facilities.

Wyandotte Chemicals to Grow

Wyandotte, Mich.—Wyandotte Chemicals Corp. will expand three chemical manufacturing and compounding plants here; its limestone quarries at Alpena, Mich.; clay operations at Blue Mountain, Miss.; and the compounding plant at Los Angeles, reports Robert B. Semple, president.

He said expansion had been studied for the past year and a half and while it is based primarily on supplying civilian demand, it does anticipate "extraordinary requirements of the prepardness program."

Manganese Imports Up 5 Pct

Washington—Imports of manganese ores rose 5 pct in January over the December figure of 159,993 tons. India supplied 54 pct of the total, according to a survey by the U. S. Bureau of Mines. Shipments of manganese ore of 35 pct manganese content from domestic mines was about 9000 tons during January.

Everywhere you look—

TOWMOTOR REPLACEMENT PARTS ARE QUICKLY AVAILABLE

To make available man-power more productive Towmotor Fork Lift Trucks provide continuous service on all handling jobs. However, even normal mechanical operations require occasional replacement parts to maintain top operating efficiency. To take care of your Towmotor requirements, your Towmotor Representative carries a full line of GENUINE Towmotor-Specified Replacement Parts. TOWMOTOR CORPORATION, Div. 15, 1226 E. 152 nd St., Cleveland 10, Ohio.

Genuine Towmotor-Specified Parts are easy to identify, easy to handle and are delivered to you in perfect condition in this specially designed package.

TOWMOTOR PREVENTIVE MAINTENANCE SERVICE ELIMINATES DOWN TIME!

Available through Towmotor Representatives, *Towmotor Preventive Maintenance Service* helps keep your Towmotor equipment up to maximum operating efficiency, assuring extra years of trouble-free service. Towmotor Preventive Maintenance Inspections by factory-trained mechanics can be scheduled for periods when your Towmotors are not in service.

Write for full details!

TOWMOTOR®
THE ONE-MAN-GANG

FORK LIFT TRUCKS and TRACTORS

RECEIVING • STORAGE • PROCESSING • DISTRIBUTION

12 Models—A Towmotor for every job

HOW MANY PEOPLE HAVE YOU TALKED TO ABOUT AMERICANISM TODAY?

NOW! Use Wyandotte Metal Cleaner No. 5 for All These Applications!

- *Immersion cleaning**
- *Rotary washer cleaning**
- *Tumble barrel cleaning**
- *Pressure spray washer cleaning**
- *Electrocleaning**
- *Maintenance cleaning of concrete surfaces*

**Ferrous and nonferrous metals*

Wyandotte Metal Cleaner No. 5

—a dustless, free-flowing, all-soluble cleaner

IF ANY of the applications listed here are yours, ask your Wyandotte Representative to demonstrate Metal Cleaner No. 5. He'll probably prove to you that your present cleaning costs are higher than they should be. While your present cleaner might be doing a good enough job, Metal Cleaner No. 5 can do it better—and more economically! From copper to concrete, you can cut costs and get cleaner surfaces with Metal Cleaner No. 5. Try it!

P.S.—If you're having a cleaning problem of any type, write Wyandotte for free technical information and service.

- *Holds its strength in solution, which reduces cleaner costs*
- *Has superior detergency on all types of soils*
- *Rinses freely*
- *Is well inhibited*

THE WYANDOTTE LINE—products for burnishing and burring, vat, electro, steam gun, washing machine and emulsion cleaning, paint stripping, acid pickling, related surface treatments and spray-booth compounds. An all-purpose floor absorbent: Zorball. In fact, specialized products for every cleaning need.

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN
Service Representatives in 88 Cities

Wyandotte
REG. U. S. PAT. OFF.

Fairless Works Construction In First Phase; Equipment Listed

Project manager addresses Philadelphia Engineers Club meeting.

Philadelphia—The vast Fairless Works construction project has entered its first phase. Placing of fill for blast furnaces and the coke plant excavation has started and over 35,000 yards of earth have been dug up for the foundation of the hot strip finishing building, said J. Donald Rollins, U. S. Steel Co. project manager. He addressed a meeting of the Engineers Club of Philadelphia last week.

He estimated that about 7 million cu yards of fill will have to be placed so that floors of some buildings can be 25 ft above mean sea level and all yards, 20 ft. Fill material from a mooring place for ships excavation and blast furnace slag will later be used.

Foreign ore expected later will be taken from ocean ships by two bucket unloaders at a rate of 1500 tons per hr. Railroad cars will supply the mill with ore at first.

Two Blast Furnaces—The 105-ft high blast furnaces, having 28-ft diam hearths, will get their hot blasts from three stoves. Cold blast for the stoves will come from an individual turbo blower for each furnace.

The furnaces will get coke from two batteries of 87 ovens each. At the start of operations, coal will be delivered by rail but shipments may later come by water.

Coal will be coked by "destructive distillation" (without combustion) in externally heated ovens of the low differential, four divided, underjet type. Underfiring of the ovens will take about 18.6 million cu ft of coke oven gas daily. Other facilities will take an additional 22 million cu ft of coke gas.

Nine 275-ton stationary basic openhearths designed for front flushing will produce 1.8 million tons of steel ingots annually. They will be equipped with a waste heat

boiler of the horizontal fire tube type.

Ten batteries of two pit furnaces will serve as soaking pits. The 45-in. slabbing and blooming mill will be the first of its type to have fixed vertical roll drives, driving through universal vertical spindles. Quick roll changes from slabs to blooms will be possible.

Slabs or Blooms—The mill will produce either slabs for the 80-in. continuous hot strip mill or blooms for the 40-in. reversing mill and continuous billet mill. Four universal roughing stands will reduce large slabs. Six finishing mills will work at a top speed of 2300 ft per min.

The sheet and tin finishing department will have three major sections: hot strip finished product, tinplate, and cold-reduced finished product. An 80-in. continuous pickler will remove scale from hot-rolled coils. A 5-stand cold reduction mill will reduce strip for tinplating and a 2-stand tandem mill will serve as the tin temper mill. The electrolytic tinning line will plate one-half lb per base box.

A 4-stand tandem mill will also produce cold-reduced sheets and 11 4-stack batch annealing furnaces with 27 bases will anneal sheets and tinplate specialties. The sheet temper mill will be a single stand 4-high mill.

A 40-in. 2-high reversing blooming mill, a 30-in. 6-stand continuous billet mill, and a 21-in. continuous billet mill of four stands will produce billets and small slabs. A 10-in. continuous bar mill will roll billets into rounds, squares, hexagons, angles, and flats.

National Tube Co. facilities will include two continuous butt weld mills, a skelp mill, a pipe mill, pipe finishing facilities, and warehouse. Electrical power for the entire plant will come from the main power plant near the blast furnaces and from outside sources. Water will be pumped from the Delaware River at a daily rate of 230 million gal and will be supplemented by 15 million gal of underground water.

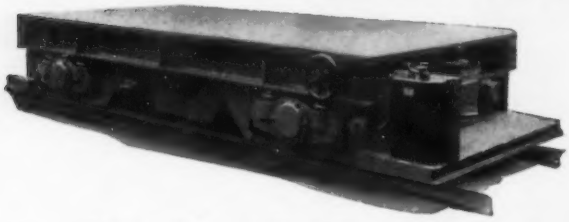
See your Willson distributor or write for bulletin.

WILLSON PRODUCTS, Inc., 231 Washington St., Reading, Pennsylvania

ATLAS
INTRA PLANT CARS

DESIGNED AND ENGINEERED
FOR YOUR SPECIFIC NEEDS

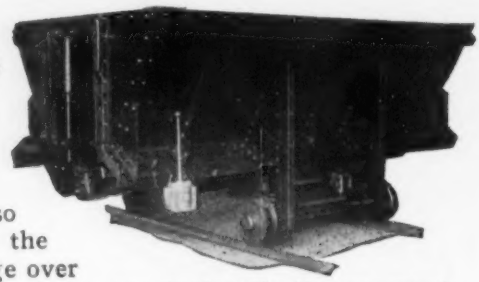
STORAGE BATTERY FLAT CAR



60-TON
CAPACITY

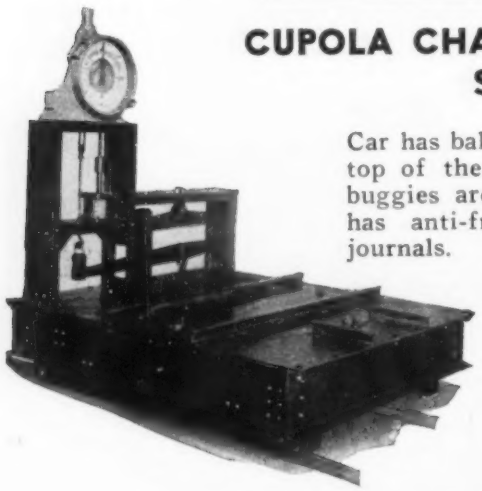
This self-propelled flat car operates on standard gauge track. Car provided with hydraulic electric brakes that can be operated by handwheel when long overhanging loads are encountered. These battery propelled cars are often provided with charging equipment mounted on car.

FURNACE CHARGING CAR, 8-TON CAP. CENTER DUMP



The discharge gates are so arranged as to spread the charge to the best advantage over the width of the furnace. Gates are hydraulically operated through a hand pump. Car is mounted on anti-friction roller bearings with spring mounted journals. Car provided with automatic engine couplers.

CUPOLA CHARGING SCALE CAR



Car has ball bearing steel turntable on top of the car upon which charging buggies are placed and weighed. Car has anti-friction bearings at main journals.

Send for illustrated booklet on all types of intra-plant cars.

ATLAS ENGINEERING SERVICE
IS ALWAYS AT YOUR SERVICE

THE ATLAS CAR & MFG. CO.

ENGINEERS MANUFACTURERS
1140 IVANHOE RD CLEVELAND 10, OHIO, U. S. A.

GE Can Solder Glass to Metal And Seal Is Stronger Than Glass

Schenectady, N. Y.—Glass can be soldered to metal with a new process which its originator, General Electric, claims makes the bond stronger than the glass itself. The method can also solder metal to ceramics and carbon. It is now being tested for industrial uses by the GE General Engineering Laboratory.

A thin layer of titanium hydride is painted on glass and metal areas. Solder is placed on both painted surfaces which are brought together and heated under a vacuum. The titanium hydride decomposes at 900°F and the now molten solder sticks to both glass and metal areas.

With soft metal solders, the seal can be subjected to rapid temperature changes without cracking despite widely differing temperature expansions of glass and metal. The solder absorbs the differences in movement. Aircraft ignition systems already are using the technique.

Wind Faster than Speed of Sound

Schenectady, N. Y.—Reportedly the greatest power output ever to be concentrated on a single shaft, a 180,000-hp wind tunnel drive, is part of the order awarded General Electric by the National Advisory Committee on Aeronautics. This and a 110,000-hp drive will be installed in two supersonic wind tunnels at NACA's Ames Aeronautical Laboratory, Moffett Field, Calif.

Wind velocities several times the speed of sound are expected.

Minnesota Mining Expansion

St. Paul, Minn.—A $6,500,000 plant expansion program was announced by Minnesota Mining & Manufacturing Co. Work has started at most locations and the rest will start soon. Facilities will be expanded at Atlanta, Ga., Bristol, Pa., Buffalo, N. Y., Cleveland, Lemont, Ill., Wayne, Mich., Boston, and Hastings, Hutchinson, and St. Paul, Minn.

CrysCoat is in Good Company!

*Prepares Metal Surfaces for Painting

**Patented Material and Process*

THE name SINGER† stands for fine sewing machine efficiency, design and workmanship. Oakite is justly proud of the important part the Oakite *CrysCoat* Process plays in assuring fine, durable paint adhesion and corrosion resistance for the many models of SINGER Electric Sewing Machine Heads.

The Oakite *CrysCoat* Process may be just what you're looking for. With minimum equipment . . . in minimum time . . . at minimum cost you can (1) clean metal surfaces and condition them for painting; (2) improve the adhesion of paint to metal; (3) prevent corrosion before metal is painted; (4) localize corrosion under paint if finish is broken.

The Oakite *CrysCoat* Process Offers These Extras:

1. **Eliminates operations . . . uses less equipment**
2. **Cuts operating time**
3. **Uses less chemicals for cleaning and conditioning**
4. **Reduces heating costs**
5. **Saves cost of expensive acid-proof tanks and equipment**
6. **Saves cost of frequent descaling and desludging**
7. **Drag-out costs are less because of low original cost of solution**
8. **Saves paint**
9. **Cuts cost of rejects caused by rusting before painting**

FREE . . . illustrated folder describes the Oakite *CrysCoat* Process for use in before-paint-treatment of steel, aluminum sheet and castings, zinc die castings and galvanized surfaces. If you are engaged in the fabrication of civilian goods or the speedy production of defense orders—send for Folder F7642.

OAKITE PRODUCTS, INC., 30H Thames St., NEW YORK 6, N.Y.

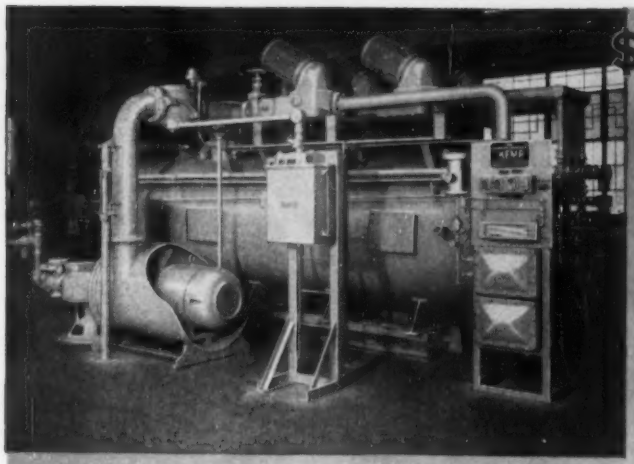
Technical Service Representatives in Principal Cities of U. S. & Canada

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

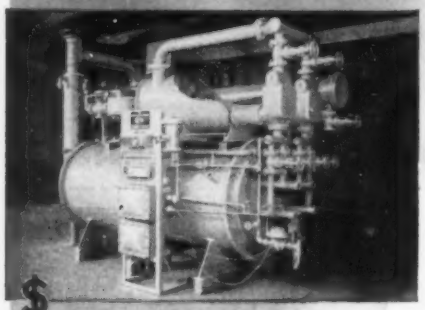
MATERIALS • METHODS • SERVICE

†A Trademark of the Singer Mfg. Co.

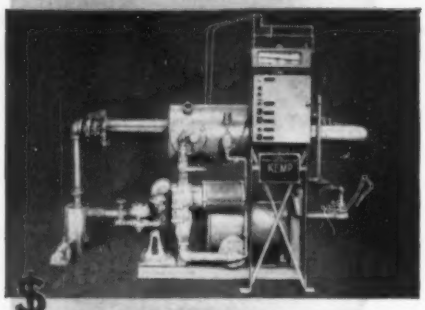


Model 60 MIHE produces 60,000 cfh . . . is widely used for purging and blanketing in the petroleum industry.

Why Pay Premium Prices For Inerts?



Model 6 MIHE is ideal for agitating, bubbling and blanketing in synthetic resin plants . . . delivers 6000 cfh.



Model 1 MIHE offers all the features of larger equipment . . . delivers 1000 cfh . . . is fully automatic.

KEMP Inert Gas Producers Can Save You up to 90% on Inert Gas Costs

Whether you now use bottled inerts or produce them with old-fashioned equipment, switch to a Kemp Inert Gas Generator and save 83% to 90% on your inert gas costs. Kemp Inert Gas Producers and Kemp Nitrogen Producers are available in standard models with capacities ranging from 500 to 200,000 cfh for fully automatic operation.

ABSOLUTELY DEPENDABLE

No matter what the demand, Kemp Inert Gas Generators give you the same analysis Inert Gas from 20% to 100% of capacity. The Kemp Industrial Carburetor, part of each installation, burns ordinary gas just as it comes from the mains. Assures complete combustion without "tinkering." Produces a clean, chemically inert gas to meet your most exacting requirements.

SEND FOR DATA

Whatever your requirements, always specify Kemp. *To find out how you can benefit:* Tell us your atmosphere gas problem, and we'll show you how Kemp can solve it and save you money!

KEMP OF BALTIMORE

INERT GAS GENERATORS

Write for Bulletin I-10 for technical information.
C. M. KEMP MFG. COMPANY,
405 E. Oliver St., Baltimore 2, Md.

CARBURETORS • BURNERS • FIRE CHECKS • ATMOSPHERE & INERT GAS GENERATORS
ADSORPTIVE DRYERS • METAL MELTING UNITS • SINGEING EQUIPMENT • SPECIAL EQUIPMENT

Navy Plans Power for Emergency

Washington—The Navy is preparing for power failures resulting from either war or natural causes. It is mounting 11 mobile power plants on special railroad cars for emergency use. Each plant has a diesel-type, 600-kw generator and could yield enough power for the minimum of military establishments.

The plants will be held at Navy installations across the country in standby status. Three will be at Charleston, S. C., and because they differ from the rest will not be shifted to simplify parts replacement. Two 10,000-kw steam power plants on six-car trains are already in service.

U.S. Steel's Defense Contribution

Boston—Almost 50 pct of U. S. Steel Co. production will go out on government directives, including DO's, 11 certified programs, and tonnage directed to warehouses and converters, B. S. Chapple, assistant executive vice-president, told the New England Chapter, American Steel Warehouse Assn.

He hastened to explain to his audience that the 50 pct government allotment does not mean that customers will get only 50 pct of accustomed needs. Much of the directed steel will be shipped traditional customers, often for the same use.

Still Good Year for Construction

New York—Although the squeeze is being put on construction, 1951 will still be a high volume year because of the "tremendous surge of activity earlier this year," said Thomas S. Holden, president of F. W. Dodge Corp.

Dodge's 37-state (East of the Rockies) award total for March was $1,267,450,000—11 pct over February, but 3 pct under March last year. Non-residential contracts were $469,254,000, 9 pct over February, but 6 pct below March '50. Public and private works and utilities were $223,627,000, 25 pct above February and 1 pct under March.

"Structural Work Expedited Considerably"

AT CHICAGO BRIDGE & IRON COMPANY

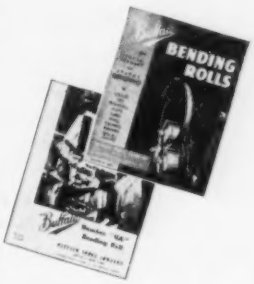
WITH THIS "Buffalo" BENDING ROLL

Bending heavy channel in a hurry! "Buffalo" No. 3 Bending Roll In Action at Chicago Bridge & Iron Co.

At Chicago Bridge & Iron Company, Salt Lake City, Utah, heavy structural shapes have to be bent accurately and in a hurry! The "Buffalo" No. 3 Horizontal Bending Roll shown above does the job—does it economically and does it well. But let R. S. Chamberlin, Shop Engineer, tell the story:

"Up to the present time," says Mr. Chamberlin, "the Buffalo No. 3 Horizontal Bending Roll has given us very little maintenance trouble. We use the machine for many operations. For example: rolling structural shapes, back-up bars, narrow plates, rails, etc., and by its use we have expedited our structural work considerably."

Chicago Bridge and Iron, with FOUR Buffalo Bending Rolls, is just one of hundreds of firms profiting from the use of these machines. Why not investigate?



YOURS ON REQUEST!

If your operations call for bending light sections, write for Bulletin 3344-A, on "Buffalo" OA Aircraft Type Rolls. For heavy bending, specify Bulletin 352-B, right.

"Buffalo" MACHINE TOOLS

BUFFALO FORGE COMPANY

492 BROADWAY BUFFALO, NEW YORK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

DRILLING PUNCHING SHEARING CUTTING BENDING

Branch Offices in all Principal Cities

Cleveland has specialized for 35 years in making a few items well—

Top Quality

Cap Screws • Set Screws • Milled Studs

Specialization at "Cleveland Cap" guarantees closer attention to accurate production, rigid inspection, and prompt shipment (as conditions permit). Our capacity is concentrated on standard Cap Screws in an unusually wide range of sizes—all popular heads; square head Set Screws, and Milled Studs. We also have capacity for producing your special design headed and threaded parts by cold extrusion. See your jobber for *standard* items; write us about your "specials."

THE CLEVELAND CAP SCREW COMPANY
2917 East 79th Street, Cleveland 4, Ohio
Warehouses: Chicago • Philadelphia • New York • Providence

CLEVELAND *Top Quality* **FASTENERS**

originators of the Kaufman DOUBLE EXTRUSION Process
Ask your jobber for Cleveland Fasteners

Lake Carriers' Re-elect Officers

Cleveland—John T. Hutchinson, president of Pioneer Steamship Co. and Buckeye Steamship Co. and a senior partner of Hutchinson & Co., was re-elected to his fifth term of president of the Lake Carriers' Assn.

Returned to office also were: Admiral Lyndon Spencer, executive vice-president; Gerald S. Wellman, vice-president in charge of public relations; Oliver T. Burnham, secretary; F. J. Hollman, treasurer; and Gilbert R. Johnson, counsel.

Enters Clutch Facings Field

Houston, Tex.—Standco Brake Lining Co. is now manufacturing clutch facings in addition to its line of oil industry brake linings. C. W. Hanslip, president, reported that his firm is producing a new heavy-duty clutch facing in both the gear tooth and plain disc types for oil production marine, earth-moving, and heavy transportation industries. He said Standco plans to triple present facilities for the new product.

Philco Starts Defense Div.

Philadelphia — An individual Government and Industrial Operating Div. to coordinate increased output of government and industrial products has been set up by Philco Corp. Vice-president of operations is Joseph H. Gillies, who will report directly to higher echelon management. He will continue as vice-president of operations of the Philco Television and Radio Div.

Use Less Tin on More Tinplate

New York—The steel industry in 1950 shipped 33 pct more tin and terneplate and used 20 pct less tin than in 1941, said the American Iron & Steel Institute.

Of the 4.7 million tons of tin and terneplate shipped in 1950, 60 pct was made by the electrolytic method. The balance was prepared by the hot dip method which comprised practically all production in 1941.

Commercial Jet Conference

New York—The Aviation Div. of the American Society of Mechanical Engineers will discuss design and operational problems of turbine driven (jet and turboprop) commercial aircraft at its semi-annual meeting to be held at Toronto, Canada, on June 13.

Three of the five authors who will present papers will arrive from England and the remaining two will represent the Canadian industry. The program will be cosponsored by the Institute of the Aeronautical Sciences, the Society of Automotive Engineers, and the Gas Turbine Power Div. of ASME.

S.P. Orders 1600 More Box Cars

Birmingham — The Bessemer plant of Pullman Standard Car Mfg. Co. has received an order from the Southern Pacific R.R. for 1600 box cars, valued at $8 million. This is in addition to 5000 cars already on order from Southern Pacific at the Bessemer plant.

Complete delivery of the 6100 cars, to cost $31 million, will not be made until the second quarter of 1952.

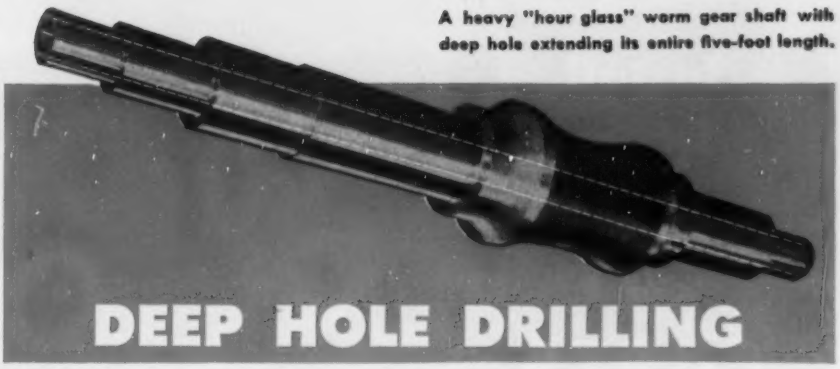
Central of Georgia Orders

Atlanta — Central of Georgia R.R. has ordered 22 Diesel locomotives and 525 freight cars valued at $6 million. The locomotive orders were placed with American Locomotive Works and Electro-Motive Div. of General Motors. The 300 steel-sheathed box cars, 200 50-ton all-steel flat-bottom gondolas, and 25 hoppers have been ordered from Pullman Standard Car Mfg. Co. and American Car & Foundry Co.

Prevents Freight Load Shifting

Chicago — A new freight car bulkheading device, designed to prevent shifting of loads, has been developed by the Pullman-Standard Car Mfg. Co. Called a compartmentizer, it consists of adjustable steel gates which are locked in place at ceiling, wall and floor.

A heavy "hour glass" worm gear shaft with deep hole extending its entire five-foot length.



DEEP HOLE DRILLING

A Complete Engineering and Manufacturing Service

The drilling and boring of deep holes, especially in the newly developed alloys (in many cases hardened before machining), is so vastly different from ordinary machine shop practice that few manufacturers realize the extent of the difficulties involved.

This is only natural, because many experienced all-around shop men have, in most cases, only recently been called upon to do work of this particular kind.

A thorough study of the subject, and the exclusive practice in deep-drilling and finish boring all manner of hard alloys have, over the years, given us a wealth of accumulated experience.

Therefore, when your schedule calls for deep hole production, it will pay you to employ us, and have us review your requirements in relation to your facilities. The engineering fee charged by us for preliminary work has, in the past, never failed to substantially reduce the over-all production cost.

Wherever warranted, we provide you with a formal method study evaluating all processing possibilities.

Through this we will not only arrive at the design of the tools best suited to drill and bore your deep holes economically and well, but also, and this is equally important, the correct procedure in making these tools work, including a detailed description of the machines and other facilities required, the exact power needs, and a realistic estimate of the time the operation will take.

In many cases, rather than have us furnish you with the tools for use in your plant, you will find it advantageous to have us do your deep hole drilling and boring for you in our own shop, under our own expert supervision.

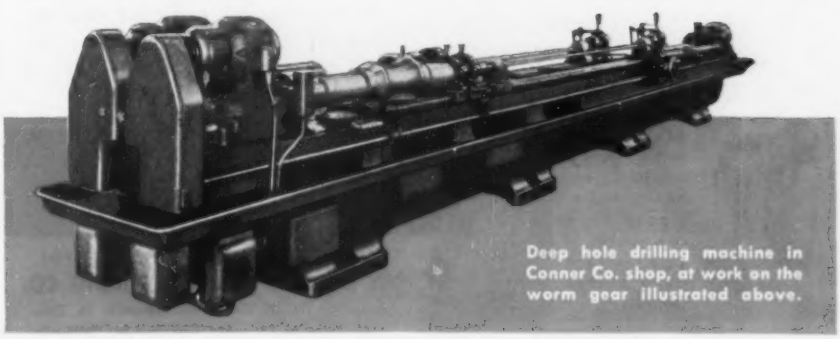
For Deep Holes—Exclusively . . . and for such machining operations where deep hole drilling is the dominant feature . . .

Conner
TOOL & CUTTER CO.

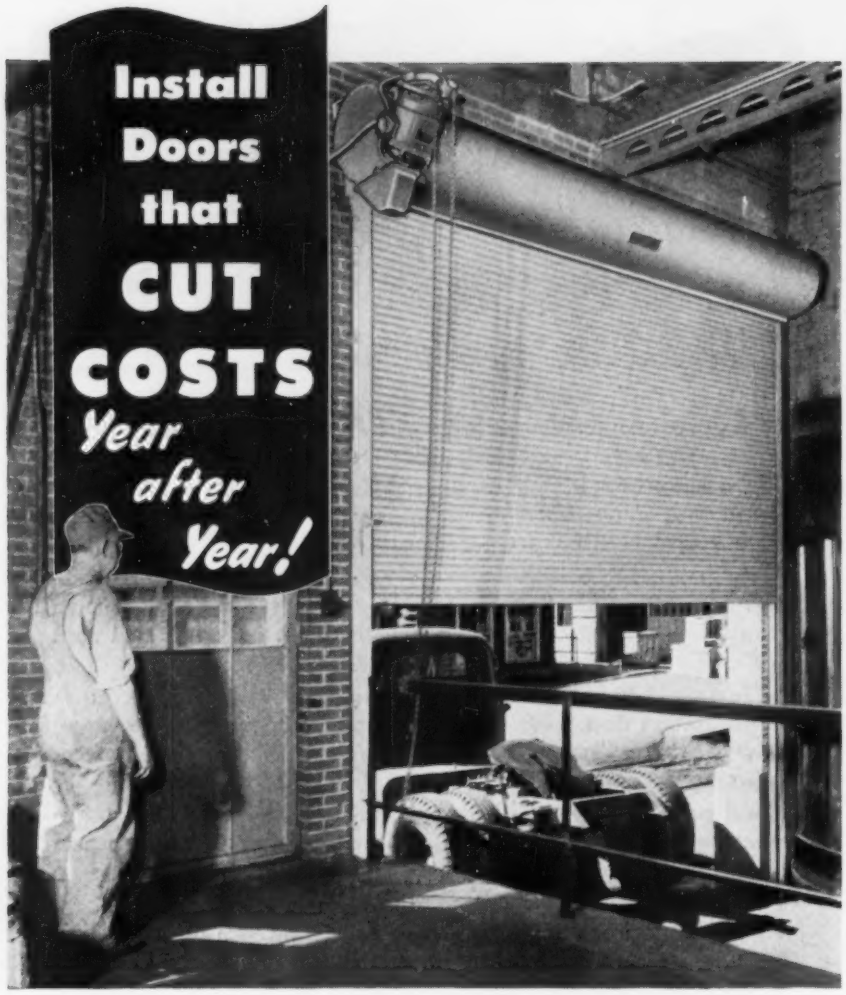
Deep Holes Exclusively

CONSULTANTS • DESIGNERS • TOOLMAKERS • DRILLERS

1000 East McNichols Road, Detroit 3, Michigan



Deep hole drilling machine in Conner Co. shop, at work on the worm gear illustrated above.



KINNEAR Metal Rolling Doors

Reducing *door costs* is not the only gain you make when you install Kinnear Rolling Doors. You also help cut other plant costs, in many ways.

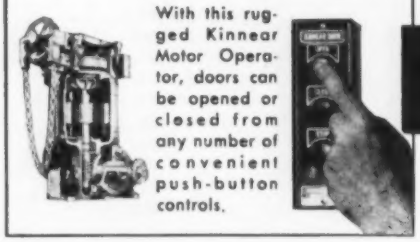
Coiling upward action permits full use of all floor and wall space around openings, at all times. You can stack materials within an inch or two of the door, inside or outside—*or on both sides*—without impeding its action. This promotes more efficient handling of door traffic, deliveries, and shipments.

The smooth, easy action of Kinnear Rolling Doors saves time and labor—and no other type of door is so well adapted to the extra advantages of motor operation. With pushbutton controls at any desired number of convenient points, the door can be raised or lowered quickly at a second's notice.

As a result, they are consistently closed more quickly after being opened, which brings important reductions in heating and air-conditioning costs.

When opened, the doors remain completely out of the way, safe from damage by wind or vehicles. When closed, their rugged all-metal interlocking-slat curtain assures extra protection against fire, intrusion, wind and weather.

Kinnear Rolling Doors are built in any size, to meet the particular specifications of each opening, in old or new buildings. Motor or manual control. Write for full information.



With this rugged Kinnear Motor Operator, doors can be opened or closed from any number of convenient push-button controls.

Saving Ways in Doorways

KINNEAR
ROLLING DOORS

Offices and Agents in All Principal Cities

THE KINNEAR MANUFACTURING CO.

Factories: 1760-80 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, California

publications

Continued from Page 36

will present dust and fume control data and information applying to all segments of the chemical and metallurgical industries. *American Wheelabrator & Equipment Corp.*

For free copy insert No. 9 on postcard, p. 37.

Valve Actuators

Designed for the operation of gate valves, plug valves, dampers, diaphragm valves, butterfly valves and sluice gates, the new line of Leeden valve actuators described in a 4-p. bulletin can be adapted to any make, size, and type of valve; to operate against any line pressure; to work on any fluid medium, and with any pressure available; and can be arranged for on-and-off or positioning service. The folder shows typical valve actuator circuits, capacities of valve actuators and details of construction, application and control. *Ledeen Mfg. Co.*

For free copy insert No. 10 on postcard, p. 37.

Special Type Fittings

In addition to describing new low cost corrosion-resistant fittings, for which patents are pending, an 8-p. booklet shows how lightwalled Schedule 5S corrosion-resistant piping reduces the cost of a typical piping layout. *Horace T. Potts Co.*

For free copy insert No. 11 on postcard, p. 37.

Lift Truck Attachments

Prepared for industrial users of lift trucks who are faced with unusually difficult handling problems, a new 4-p. folder illustrates the many Towmotor devices specially designed to grip, clamp, grab or support almost any type of load, and lift, transport, unload, deposit, dump, upend or completely revolve it. They represent special combinations of standard accessories, special load-supporting mechanisms, and other non-standard equipment. *Towmotor Corp.*

For free copy insert No. 12 on postcard, p. 37.

Oil Purifiers

The solution to a costly quench oil consumption problem is presented in a case history which explains and illustrates International Harvester's new quenching method.

Udylite Automatic Loader and Unloader shown as used in processing pistons for automobile engines.

ANOTHER UDYLITE CONTRIBUTION TO LOWER PLATING COSTS...

Here's your answer to the increasing production costs in electro-plating—the new Udylite Automatic Loader & Unloader. This completely automatic hydraulic unit provides a vital link in the processing and metal finishing chain. The Loader conveys work racks automatically from the racking station to the plating machine and loads the racks on the plating unit mechanically—eliminating the labor ordinarily required for transporting work, loading and unloading.

Consider *all* these advantages:

1—The Udylite Loader can be used on a large machine or it can be used as an intermediary between two small machines where the plating cycle is split.

2—It can be added to an existing automatic plating machine in the field or it can be ordered as optional equipment on a new machine.

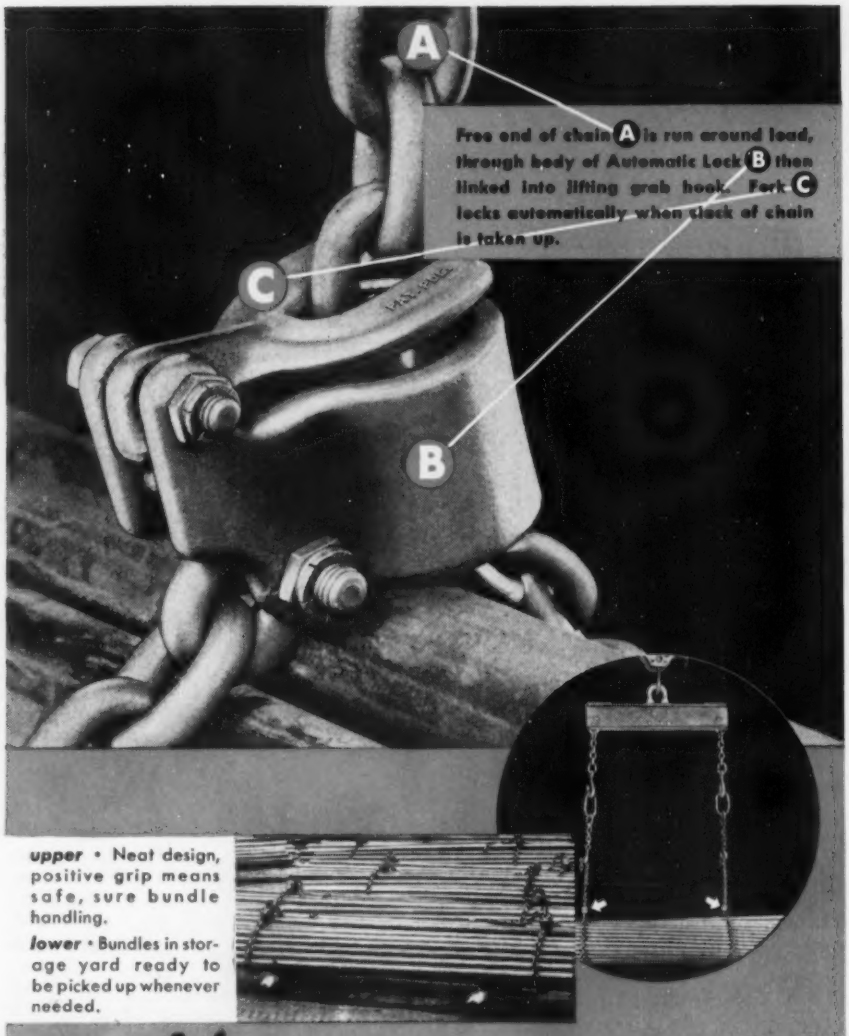
3—Although the Loader is hydraulically-driven, it can be used with either hydraulic or air-operated plating machines.

4—Plating machines equipped with the Loader can be operated independently, since a separate hydraulic circuit is built into each Loader.

Let your nearby Udylite Technical Man give you the complete story about this new Udylite development to *Better Your Way of Plating*. Call him today or write direct to *The Udylite Corporation, Detroit 11, Michigan*. There's no obligation.

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN


A
B
C
Free end of chain A is run around load, through body of Automatic Lock B then linked into lifting grab hook. Fork C locks automatically when slack of chain is taken up.

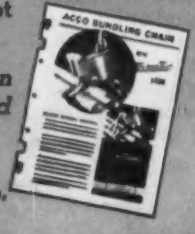
upper • Neat design, positive grip means safe, sure bundle handling.

lower • Bundles in storage yard ready to be picked up whenever needed.

New AMERICAN BUNDLING CHAIN with Automatic Lock

A complete unit...ready to use. Eliminates links, shackles, pins, wires. Depending on the type of service and use, the drop-forged Automatic Lock can be furnished with 17/32", 9/16", 5/8", and 21/32" wrought iron, low carbon, high test, or alloy chain.

Speeds Material Handling. **Bundles can be made up quicker, handled faster and safer, and stored indefinitely without loosening. Bundle is opened by flipping locking fork back by hand while load is suspended. When bundle is set down, chain runs back through lock body.**



***Write** today for Bulletin **DH-266** on the ACCO Bundling Chain with drop-forged Automatic Lock (Patent Pending).*

ACCO York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Bridgeport, Conn.

AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

In Business for Your Safety

publications

Continued

"mass marquenching" of gears, shafts and other parts. It shows how installation of Honan-Crane oil purifiers permits safe use of quenching oil 3 times as long in this particular operation; how quench oil, kept clean and at a desired viscosity, drains more readily from the parts after they are quenched, resulting in less oil consumption and cleaning. *Honan-Crane Corp.*

For free copy insert No. 13 on postcard, p. 37.

Case History on Clutches

A new case history book shows Maxitorq floating disc clutches on various machines and industrial products, including an ore loader, can seaming machine, packaging equipment, power sweeper, industrial truck and machine tools (milling, chucking, multiple automatic tapping, automatic lathes, shaping, honing). The book includes complete information on the clutch, as well as a new automatic overload release clutch, especially designed for protection on high speed machinery. *Carlyle Johnson Machine Co.*

For free copy insert No. 14 on postcard, p. 37

Floor Resurfacing

A new 4-p. bulletin describing Armor resurfacing and patching material for concrete floors details features and contains complete technical information. It also describes recent laboratory tests which indicate that this material will withstand loads two to four times greater than standard cement, and has the ability to resist acids, oil and moisture. *Monroe Co., Inc.*

For free copy insert No. 15 on postcard, p. 37.

Load Cells

A new 2-p. bulletin describes, illustrates, and gives specifications for a new line of seven type "U-1" SR-4 universal load cells ranging in weighing capacity from 500 to 50,000 lb in tension and compression. The cells shown depend upon electrical resistance measurements of SR-4 resistance wire strain gages bonded to the steel column. *Baldwin-Lima-Hamilton Corp.*

For free copy insert No. 16 on postcard, p. 37.

Resume Your Reading on Page 37

production ideas

Continued from Page 40

motor, requiring shop air pressures varying from 20 to 80 psi. *Dayton Rogers Mfg. Co.*

For more data insert No. 31 on postcard, p. 37.

Tapping Machine

Fully automatic; produces 100 3.5 rocket body pieces per hr.

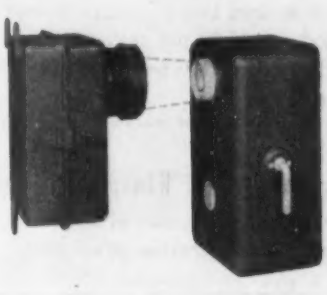
A new Model E-4U Cleveland lead screw production machine is fully automatic in operation except for loading and unloading. The fixture is the shuttle type and is air operated as are chucks for holding the part. A cutting speed of 34 fpm is used. The material used in the part is 4140 seamless steel tubing, hardened to Rc 35 to 37. The thread is a 1 25/32-16 pitch buttress. *Cleveland Tapping Machine Co.*

For more data insert No. 32 on postcard, p. 37.

Intrusion Alarm

Uses invisible light for positive intrusion and burglary protection.

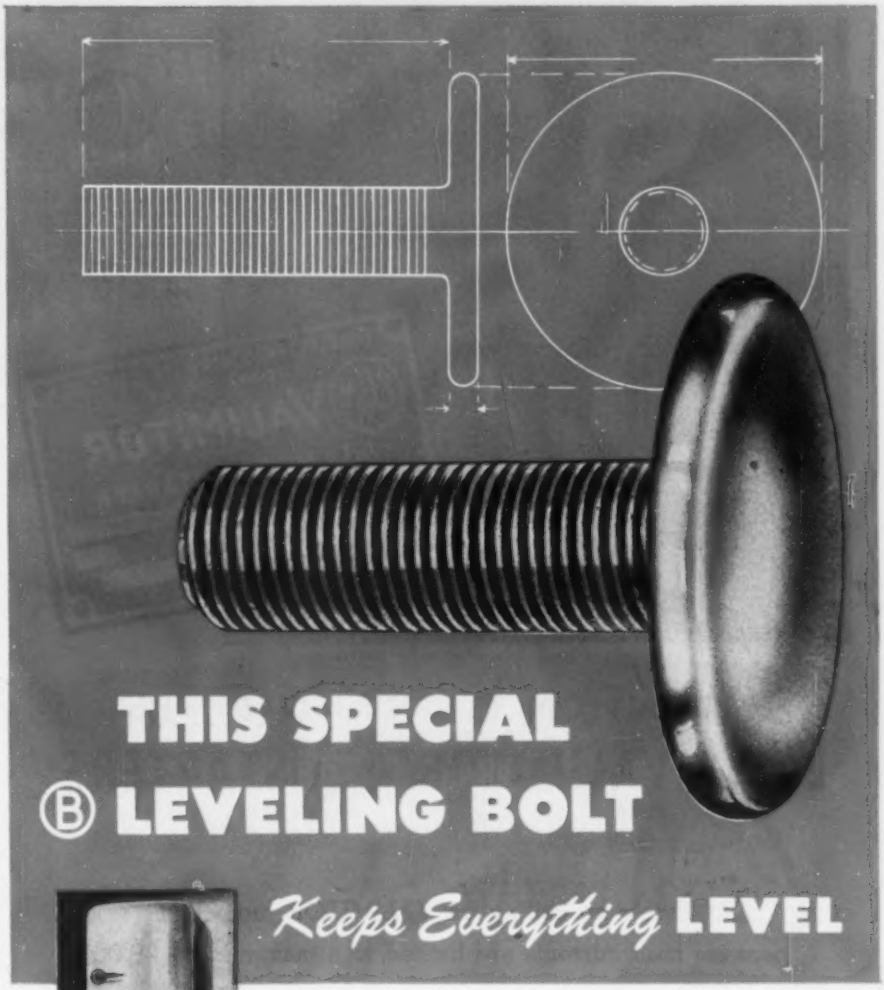
New photoelectric equipment provides a protecting wall of invisible light across any space up to 50 ft;



no intruder can enter this space without setting off an alarm. An invisible infrared beam projected from the light source is aligned to strike the eye of the control. Momentary interruption of it actuates the control relay, which is wired to operate and sustain an external alarm device. Equipment is rugged and supplied in dust-

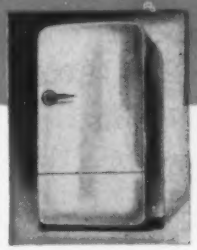
How ICE CUBES get SQUARE

Has it occurred to you that modern home appliances such as ranges and refrigerators must be provided with leveling adjustments? Floors often are not level; therefore, a special Ⓑ leveling bolt is used under each corner of your refrigerator. These bolts give the housewife level trays of liquids—they assure that the refrigerator door swings properly—and even the ice cubes are always on the square!



THIS SPECIAL Ⓑ LEVELING BOLT

Keeps Everything LEVEL



APPLICATIONS

For Refrigerators, Ranges, Washing Machines, Oil Burners, and similar appliances, either movable or stationary.

There's a special job to do and a special Ⓑ bolt does that job. The extremely large head plus the high strength of this rust proof bolt meet the problem. Control from the raw billet to the finished bolt is one reason for quality. Other leveling applications for these bolts are many. They can be furnished with anti-skid or smooth surfaces; with shoulder for wrench adjusting, or made to suit your particular specifications. We'll gladly help you "keep it on the level."

QUALITY...

from Blueprint to Product!

BUFFALO BOLT COMPANY

Division of Buffalo-Eclipse Corporation

NORTH TONAWANDA, NEW YORK

Sales Offices in Principal Cities. Export Sales Office: Buffalo International Corp., 50 Church Street, New York City

Our Specialty is **"SOMETHING SPECIAL"**

Control Room at open hearth pump station, showing Valimitor Starters for six 2300-volt motor-driven pumps.

PROTECTION IS UNLIMITED with

EC&M VALIMITOR (VOLT AMPERE LIMITOR) STARTERS

There's no ceiling on VALIMITOR protection because fault currents are limited to a maximum of 25,000 KVA (steady state current) and the well-known Type ZHS Contactor used in these starters clears such faults quickly.

Because protection is *unlimited*—there's no need for calculating existing short circuit capability—no need to fear that these starters will be out-moded by future growth in KVA.

Also there are no fuses to replace after a fault. EC&M 2300-4600 volt VALIMITOR Starters give *permanent* protection.

WRITE FOR COMPLETE FACTS— Ask for T9-117 Reprint Bulletin

THE ELECTRIC CONTROLLER & MFG. CO.

2698 EAST 79th STREET • CLEVELAND 4, OHIO

production ideas

Continued

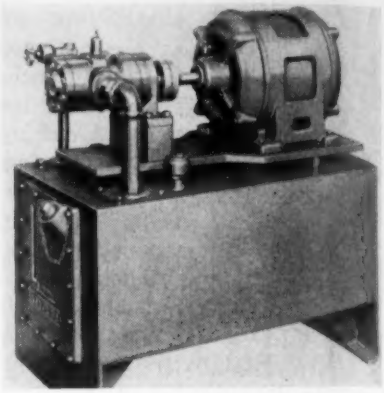
tight housings. It features simplified installation and minimum of maintenance. *Photoswitch, Inc.*

For more data insert No. 33 on postcard, p. 37.

J.I.C. Power Units

In three series; 10 models for ¾ to 25 hp electric motors.

A new line of J.I.C. hydraulic power units feature completely sealed tank, with breather air cleaner and separate filler hole having removable mesh screen and chain-attached cap; elevated tank



body with dished bottom, drain plug, and cleanout holes at both ends to permit drainage without spillage and complete cleaning of the tank; and flush type oil level indicator with high and low oil positions marked. Motor mounting plate is separate from tank for convenience in mounting units. Single, double and two-pressure pumps are used for 1000 psi service, two-stage pumps for 2000 psi service. *Vickers Inc.*

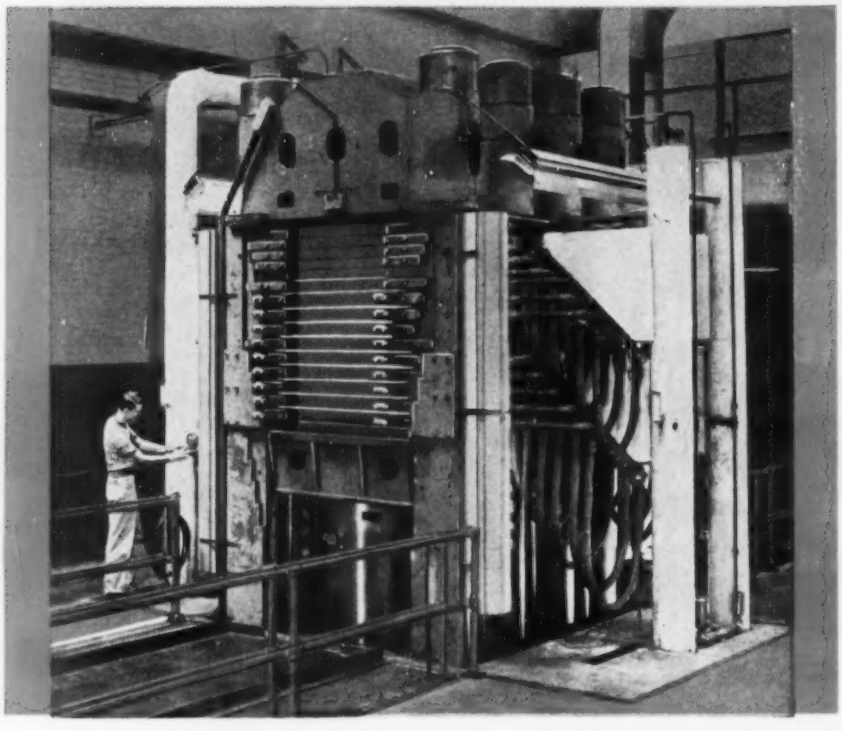
For more data insert No. 34 on postcard, p. 37.

Submerged Finishing Unit

Can be used alone or in-line for multiple operation processing.

A new submerged unit is useful in processing heavy parts and large soft metal parts. The cushioning effect that results from the complete immersion of the barrel is said to lessen the impact between the parts to such an extent that nicking and scratching are kept to a minimum. In the processing of smaller parts requiring the utmost in color and micro-inch finish, the perforated steel drum revolves in

SLAB ZINC
PRIME WESTERN, SELECT, BRASS SPECIAL,
INTERMEDIATE, HIGH GRADE, SPECIAL HIGH GRADE
AMERICAN ZINC SALES COMPANY
Distributors for
AMERICAN ZINC, LEAD & SMELTING COMPANY
COLUMBUS, O.
CHICAGO
ST. LOUIS
NEW YORK



NATIONAL PLASTIC thermo-sets Plastic Laminates with 3500-ton

FARQUHAR HYDRAULIC PRESS

The National Plastic Products Company, of Odenton, Maryland, required a hydraulic press for use in the thermo-setting of their NEVAMAR Plastic Laminates . . . a press that would be able to mold this material to very close tolerances.

Farquhar engineers supplied the answer with this built-to-specifications Hydraulic Press. The complete, self-contained hydraulic pumping unit has a capacity of 3500 tons. Each of the 15 hot plates has a clear working area of 50″ x 100″. Total working stroke: 49″.

The efficient Farquhar hydraulic circuit operates with a minimum number of valves —thus reducing maintenance cost considerably.

Its production problem solved, National Plastic is now successfully turning out Plastic Laminates to their exacting requirements.

Farquhar Presses Cut Your Costs

Just one more example of cost-cutting Farquhar performance in heavy production. Farquhar Presses are built for the job . . . assure faster production due to rapid advance and return of the ram . . . greater accuracy because of the extra guides on moving platen . . . easy, smooth operation with finger-tip controls . . . longer life due to positive control of speed and pressure on the die . . . long, dependable service with minimum maintenance cost!

Farquhar engineers are ready to help solve whatever production problem you may have. Give them a call.

Send for Free Catalog showing Farquhar Hydraulic Presses in all sizes and capacities for all types of industry. Write to: A. B. FARQUHAR CO., *Hydraulic Press Division,* 1503 Duke St., York, Pa.

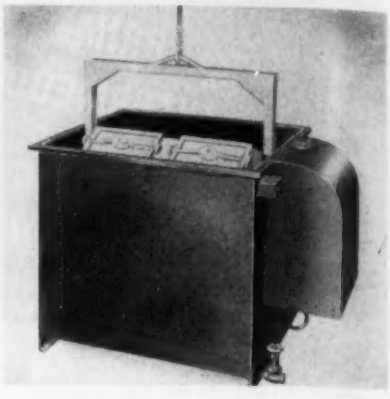
GET THE DETAILS on how our Deferred Payment Plan helps you pay for your Farquhar Hydraulic Press out of the savings it produces!

Farquhar
HYDRAULIC PRESSES
for Bending • Forming • Forcing • Straightening • Assembling • Drawing
Extruding • Joggling • Forging • and other Metal-working Operations

production ideas

Continued

an open tank of liquid. The drum is loaded with work parts and the abrasive chips or metal shapes. Various liquid compounds are used in the tank depending on whether the operation is to burnish, polish, clean, descale or rustproof. In an



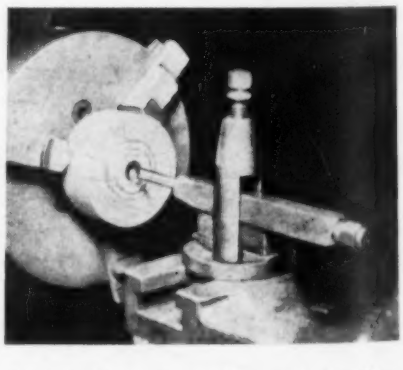
in-line setup for multiple operation processing, the drum is loaded with the parts and abrasive chips and is moved from one tank to another, eliminating the removal of the mass from the drum until the process is completely finished. A special Supersheen separating screen is available for installation at the end of the line. *Almco, Div. Queen Stove Works, Inc.*

For more data insert No. 35 on postcard, p. 37.

Collet Tool Holder

Holds square and round tool bits, twist drills, reamers, countersinks.

Single unit construction of holder and cutter gives the Bar-Mor collet



tool holder strength and rigidity, permits easy setting at constant tool height, free access to the work without disturbing setup, faster feed and heavier cuts. With this one tool, left and right hand turning and drilling are possible, as

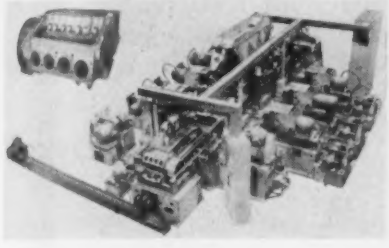
well as boring, internal screw cutting, and cutting a square thread. *Montgomery & Co. Inc.*

For more data insert No. 36 on postcard, p. 37.

Special Transfer Machine

Performs 83 drilling operations on ends and surfaces of V8 auto block.

The Barnesdril seven-station transfer machine consists of 14 hydraulic and air trav units equipped with auxiliary heads, conveyer system, automatic lubricating system,



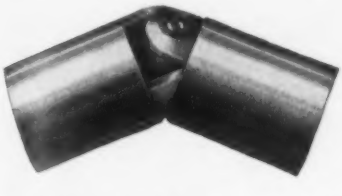
chip conveyer system, and seven station transfer mechanism with fixtures for holding parts while at various stations. The machine drills holes in both ends, and angular holes in both banks of an 8-cylinder V-type automotive cylinder block. Operation can be handled by one man at the central control station. Production can continue without any one of the individual units and it is possible to operate the machine with the workpiece delivered to any one of the stations for a single operation. Production is rated at 52 blocks per hr at 100 pct efficiency. *Barnes Drill Co.*

For more data insert No. 37 on postcard, p. 37.

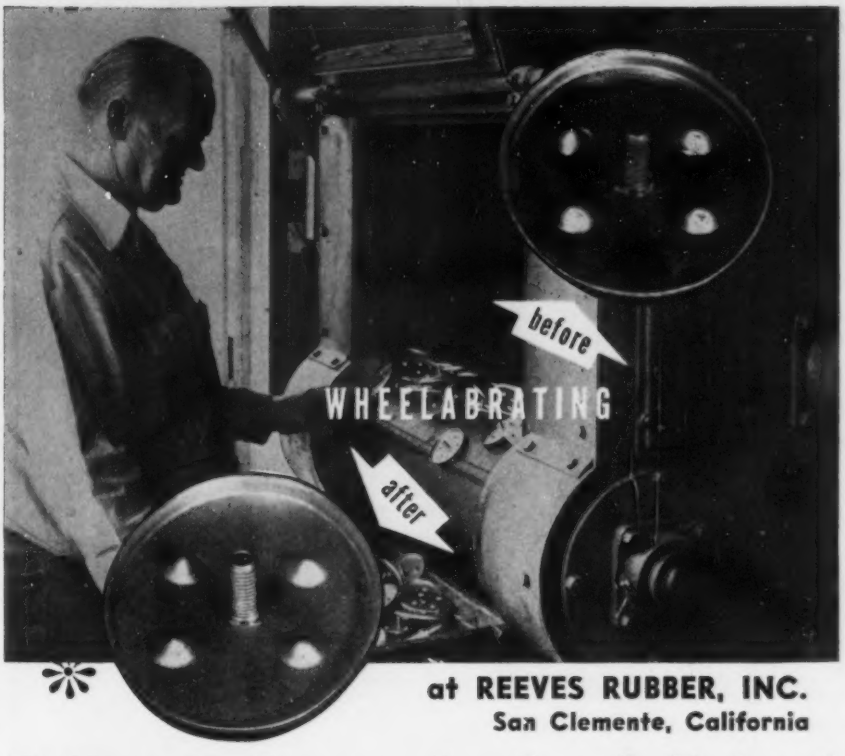
Universal Joints

Resistance to jaw spread and high speed performance are features.

Made of selected, heat treated alloy steels, two new joints in ¾ and 4 3/16 in. sizes feature short



stubby jaws and large, equal size bearings. Because of their design and riveted construction, the manufacturer claims the joints will operate efficiently and carry normal loads without flying apart at speeds to 3500 fpm. Products are avail-



at REEVES RUBBER, INC.
San Clemente, California

Rubberizing Improved at Greatly Reduced Costs with WHEELABRATOR®

Airless Blast Cleaning

To prepare the surfaces of metal parts to which rubber is bonded, Reeves Rubber, Inc. replaced costly, time consuming air blasting with a Wheelabrator. Results attained: rubber adheres tenaciously to the Wheelabrated surface; preparation time slashed 21 hours daily; cost savings of from 50% to 82%.

"I am positive that without the Wheelabrator it would be impossible for us to compete in the present market." That's the importance Ray R. Reeves, President, places on the time, cost and labor savings effected.

On every part processed, substantial cost savings have resulted. Typical examples of unit cost reductions which enabled the entire investment to be repaid within a year's time are as follows:

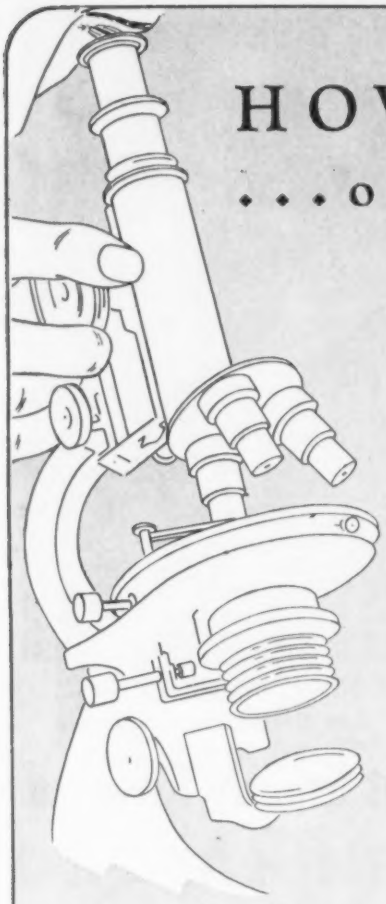
METHOD	PART 1	PART 2	PART 3	PART 4
Former Method	$.0014	$.0012	$.0075	$.0076
Wheelabrator Method	$.0006	$.0003	$.0009	$.0011

Wheelabrating will help you conserve critical manpower while giving you increased cleaning capacity for expanded production schedules and at the same time lower your processing costs. Write today for full details.

* *A savings of $1,560.-00 a year resulted by Wheelabrating this automotive pedal prior to rubber coating.*

American
WHEELABRATOR & EQUIPMENT CORP.
510 S. Byrkit St., Mishawaka 5, Indiana

WORLD'S LARGEST BUILDERS OF AIRLESS BLAST EQUIPMENT



HOW BIG?
. . . or how small?

When you look at the industrial picture of New Jersey, you see big factories... and *small factories, too.*

New Jersey is small itself in a geographical sense . . . and that means that diversified plants are always *near at hand,* ready to supply the needs of neighboring manufacturers.

Small industry forms the backbone of the industrial team in New Jersey. In the busy days ahead, these diversified manufacturers will continue to add value and profits to the products they make.

How We Can Help: Public Service serves industry through special industrial representatives on problems relating to power, industrial fuel and lighting.

Also, Public Service can help find available space which you can lease, buildings which you can buy, or industrial sites. Our Industrial Representatives can guide you in securing information on markets, labor supply, taxes, transportation and other matters relating to plant locations.

FOR YOU:

Your copy of the 20-page digest about industrial New Jersey, "The Crossroads of the East", can be obtained by writing Box E, 70 Park Place, Newark, N. J.

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production ideas

Continued

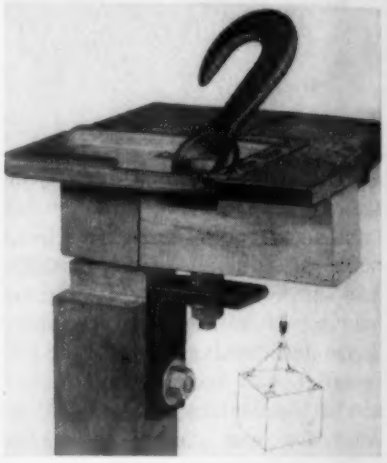
able with ends bored and machined for round, keyway, square, or splined shafts, or to user's specifications. *Gray & Prior Machine Co.*

For more data insert No. 38 on postcard, p. 37.

Lift Hooks

Built right into packing cases.

Designed to save time, labor and money in loading heavy cargo, forged lift hooks when built into packing cases as a permanent fixture prevent damage to both cases



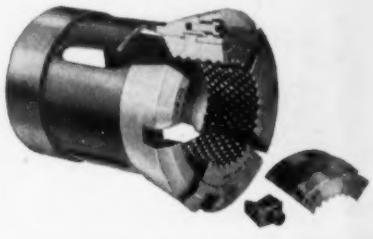
and contents. When not in use they lie flush with the tops of the cases. Lift hooks are designed to lift 20,000 lb per set of four. Small in size, made of alloy steel, the lift hooks are heat treated and zinc plated. *Neilson Wheel Co.*

For more data insert No. 39 on postcard, p. 37.

Master Collet

Pads changed without removing collet from machine spindle.

Holding features of the new FL quick change collet are the replaceable pads that are securely locked



by a greater holding mechanism to prevent slippage from bar thrust; and are diamond serrated to grip work together by holding both horizontal and rotating thrusts at an

ALLIANCE

Improved

SOAKING PIT CRANE

with MULTI-PURPOSE tongs

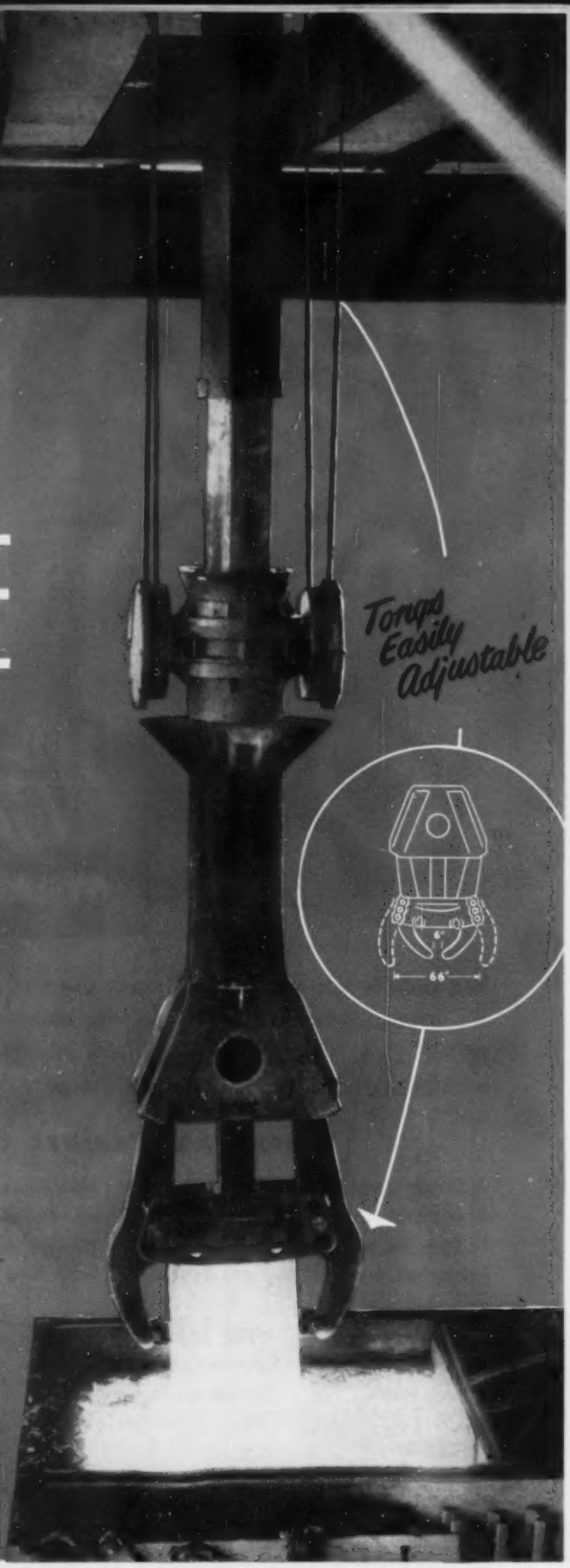
Here's a rugged, lighter weight Soaking Pit Crane that handles any width slab or ingot. It'll make bottom . . . afford the same visibility as the high rack type Soaking Pit Crane, yet takes up no more head room than a low type Soaking Pit Crane.

Special features include: telescopic ram, all operating mechanism located on deck of trolley, operator's cage on deck of trolley provides best visibility and greatest distance from all sources of heat.

Multi-Purpose Tongs provide gripping range of 6" minimum to 66" maximum opening. Consequently, a much greater range of ingot and slab sizes can be readily handled.

The Multiple Range Tongs can be installed on any model or make of Soaking Pit Crane by Alliance Engineers who will be happy to discuss your specific requirements or give you general information of interest to your industry.

- MAXIMUM RANGE CAPABILITIES
- CRANE REQUIRES MINIMUM SPACE
- AFFORDS MAXIMUM VISIBILITY
- ALL MECHANISM EASILY ACCESSIBLE
- KEEPS OPERATOR AWAY FROM HEAT



THE ALLIANCE MACHINE COMPANY

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ALLIANCE, OHIO

PITTSBURGH OFFICE
1622 OLIVER BUILDING, PITTSBURGH, PA.

CABLE CRANES • GANTRY CRANES • FORGING MANIPULATORS • SOAKING PIT CRANES • STRIPPER CRANES • SLAB AND BILLET CHARGING MACHINES • OPEN HEARTH CHARGING MACHINES • SPECIAL MILL MACHINERY • STRUCTURAL FABRICATION

We believe you will join the many users in major foundries all over the country who say . . . "they are excellent" . . . "exceptionally good" . . . "In all cases a definite improvement was noted if the molding procedure included the use of AlSiMag cores."

ALSIMAG STRAINER CORES

AlSiMag Strainer Cores are flat kiln fired ceramic cores, precision made to fit into the gate of the mold to strain incoming metal. They are made in many sizes. Gas free. Do not break up. Tough. Easy to store. Require no change in molding procedure. Save both time and labor.

Free Samples

FREE SAMPLES of sizes in stock will be sent on request. Samples to your own specifications made at moderate cost. Try them. They speed production. Reduce number of rejects. See for yourself.

AMERICAN LAVA CORPORATION
CHATTANOOGA 5, TENNESSEE
50TH YEAR OF CERAMIC LEADERSHIP

OFFICES: Philadelphia • St. Louis • Cambridge, Massachusetts • Chicago
Los Angeles • Newark, N. J.

production ideas

Continued

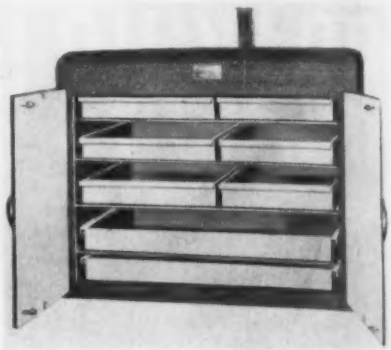
angle. Available for automatic screw machines the tool handles all sizes and shapes of stock within capacity limits. *Sutton Tool Co.*

For more data insert No. 40 on postcard, p. 37.

Electric Oven with Shelves

Uniform temperature to 225°F is provided by forced air circulation.

Four shelves that provide for shelf processing have room for eight 2-in. deep x 12 in. wide x 23 in. long drying pans. Products or



materials may be placed directly on the shelves if desired. The oven is suited for preheating plastic granules, treating powdered metals, for baking small electronic components, etc. Construction is all steel, with air-cell asbestos insulation. A motor driven fan draws in fresh air and drives out the stale air through specially located vents. *Grieve-Hendry Co.*

For more data insert No. 41 on postcard, p. 37.

Lock Nut

Sheet metal nut with double lock provides 360° grip of the screw.

A new Prestole Hex Lox nut is claimed to have twice the tensile strength of ordinary spring nuts and is 70 pct lighter weight than conventional lock nuts. Tests have showed highest installation torque, highest prevailing torque, and highest back-off torque. The nut excelled in vibration tests and tensile strength. It is made of SAE-1060 steel, 0.016 and 0.020 in. thick in five popular sizes for machine screws. *Prestole Corp.*

For more data insert No. 42 on postcard, p. 37.

Resume Your Reading on Page 41

IRON AGE *markets and prices*

market briefs and bulletins

steel prices — Government price officials are reported considering a formula which would permit some increases in steel prices to reflect higher costs. Prices are now established by voluntary agreement between representatives of the steel industry and the Economic Stabilization Agency.

called off —Merger talks between Pittsburgh Steel Co. and Allegheny Ludlum Steel Corp. have been terminated. So says a joint announcement by the two companies. The action followed a study of independent engineering reports covering the business and facilities of both firms.

goal reached —The government has stopped stockpiling lead. General Services Administration has reached its goal for lead stockpiling and will do no more buying for the present. Zinc is still being bought in small quantities and tungsten contracts are being completed wherever possible.

inventory trouble —Widespread inventory unbalance has brought some fabricators face-to-face with the prospect of cutbacks. Some already have reduced operations for this reason. For example, one fabricator has enameled sinks piled near-ceiling high but is stymied for lack of cold-rolled sheets for sink stands.

backlash —Consumers who flooded mills with DO-97's for maintenance, repair and operation are due for a shock. One producer is planning to subtract DO-97 tonnage from regular allotments to its customers. This plan will apply to June or July tonnage.

nickel expansion—International Nickel Co. of Canada, Ltd., plans to boost its 20 million lb per month capacity by an additional 1 million lb per month. Installation of new facilities will begin in 1951.

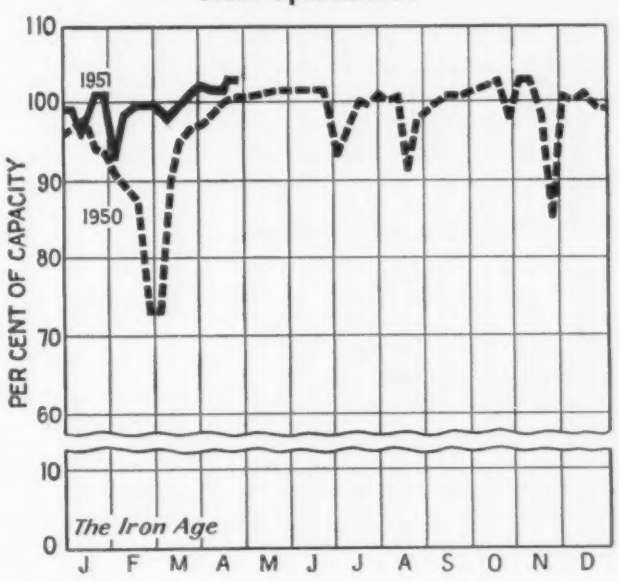
other way around — Some mysterious transposition of type in THE IRON AGE financial analysis of the steel industry (Apr. 12, 1951, p. 126), resulted in noting that The Midvale Co. had declared a 10 pct stock dividend in 1950 while the Barium Steel Corp. had declared no common dividend. Things should have been the other way around.

blame it on wages —Construction costs continue to increase despite the price freeze. Prices of materials can be held down but wages are expected to take another leap. The construction cost index of the American Appraisal Co. spurted 8 points to 525 in the first quarter this year. Heaviest increase month was January. Appraisal Co.'s index applies to construction only and "100" represents 1913 costs.

domestic tungsten —Government support of domestic tungsten output at $63 per ton was assured this week. General Services Administration is ready to buy $95 million of the scarce metal at that price. The Office of Price Stabilization has set a ceiling price of $65 per ton for tungsten concentrates.

good news —A 10 pct cut in the prices of pneumatic products has been announced by C. A. Norgren Co., Denver, maker of oil fog lubricators, pressure regulators, filters, and valves. The cut includes all items except hose assemblies and specials. Improved production methods made the decrease possible.

Steel Operations†



District Operating Rates—Per Cent of Capacity †

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	West	Buffalo	Cleveland	Detroit	Wheeling	South	Ohio River	St. Louis	East	Aggregate
Apr. 15	99.0	107.5*	96.0	100.0	107.0	104.0	98.5*	104.0*	100.0	102.5	94.0	92.4	98.0	103.0
Apr. 22	100.0	107.5	95.0	100.0	107.0	104.0	96.0	106.0	100.0	96.0	94.0	92.4	98.0	103.0

* Revised.
† Beginning Jan. 1, 1951, operations are based on annual capacity of 104,229,650 net tons.

nonferrous metals

outlook and market activities

NONFERROUS METALS PRICES

	Apr. 18	Apr. 19	Apr. 20	Apr. 21	Apr. 23	Apr. 24
Copper, electro, Conn. ..	24.50	24.50	24.20	24.20	24.50	24.50
Copper, Lake delivered ..	24.625	24.625	24.625	24.625	24.625	24.625
Tin, Straits, New York....	$1.42	$1.42	$1.42	....	$1.42	$1.42*
Zinc, East St. Louis	17.50	17.50	17.50	17.50	17.50	17.50
Lead, St. Louis	16.80	16.80	16.80	16.80	16.80	16.80

Note: Quotations are going prices.
*Tentative.

by R.Hatschek

Wait, Wait and Wait—The nonferrous scrap market remains practically unchanged this week with prices far out of line and the trade still waiting for long-overdue price controls from Washington. All sales are on a spot basis and futures are not even mentioned.

Dealers' buying prices on aluminum scrap eased up a bit last week. Crankcases, cast, old sheet and 24S clips are at 17¢ to 17½¢ per lb; pistons are 14¢ to 14½¢; 2S clips are 21½¢ to 22¢; and borings and turnings are 13¢ to 14¢ per lb.

Ingot Shipments—The Defense Council of the Ingot Brass and Bronze Industry reports shipments of 31,997 tons in March, almost 5000 tons greater than the previous month. This total is the highest since last October when shipments reached 32,240 tons.

Brass, Bronze Sales Off — Secondary ingot makers' sales are beginning to feel a heavier effect of government regulations. Sales are definitely dipping and DO business is still too spotty to take up much of the slack, though this shouldn't last very long. Ingot makers' profits are on the shaky side because of the scrap price situation and their own ceilings—particularly among the red metals.

Ask 5 pct Copper Reserve—As mentioned in this column last week, there will be little copper and aluminum left in the open end of the Controlled Materials Plan. National Production Authority recognized this and anticipated a huge flurry of buying in the 2 months preceding the effective date of CMP.

In order to assure a sufficient reserve of copper for emergency needs, NPA has announced that it will direct producers to reserve 5 pct of their output to fill these needs during May and June. NPA estimates that military requirements will be taking more than half of the available copper. Add to this the other government programs and there will be slim pickings for civilian users—25 pct, according to one industry source.

Close the Open End!—The Copper Producers Advisory Committee, also recognizing what an open-end CMP will do to the civilian market, has called for 100 pct government allocation of copper. This would lift the burden of allocating the leftovers from producers' shoulders and perhaps provide for fairer distribution.

Aluminum producers, on the other hand, prefer to distribute the leavings themselves, though one producer calls the open end "academic". Aluminum will be far tighter than copper, leaving only about 10 pct for civilian use. This does not include imports or expensive secondary ingot.

Tariff Ban Nears—The Senate Finance Committee has approved the bill abolishing the copper import tariff as long as the price exceeds 24¢ per lb. It remains for the Senate to pass the bill and the president to sign it before it becomes law.

Tin Spread Continues — Since the Reconstruction Finance Corp. lowered its tin price to $1.42 per lb last Tuesday afternoon, to late to include in the last issue of THE IRON AGE, the c.i.f. New York equivalent of the Singapore price has resumed its position above the RFC quotation. Toward the end of the week, the Far East price edged upward until, on Friday, it stood at about $1.48. It is difficult to predict whether or not the RFC price will follow the East.

Early this week, the Singapore market dipped about 1¼¢ per lb, still more than 4¢ per lb over the current RFC price.

It is reported that RFC and the Bolivian tin producers have reached a compromise agreement with neither side getting all that it asked. The new contract provides a rather complicated pricing arrangement for something between a long and a short term.

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.6¢; 24S-O, 24S-OAL, 34.1¢; 75S-O, 75S-OAL, 41.8¢; 0.032 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate: ¼ in. and heavier: 2S, 3S-F, 28.3¢; 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 38.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.2¢ to 74.5¢; 12 to 14, 36.9¢ to 89¢; 24 to 26, 39.6¢ to $1.16; 36 to 38, 47.2¢ to $1.70.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 33.5¢; cold-finished, 0.375 to 3 in., 2S-F, 3S-F, 40.5¢ to 35¢.

Screw Machine Stock: Rounds, 11S-T3, ¼ to 11/32 in., 53.5¢ to 42¢; ⅜ to 1½ in., 41.5¢ to 39¢; 1 9/16 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 56S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63-S-T5, OD in in.: 1⅛ to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., $1.142; 96 in., $1.522; 120 in., $1.902; 144 in., $2.284. Gage 0.024 in. x 28 in., 72 in., $1.379; 96 in., $1.839; 120 in., $2.299; 144 in., $2.759. Coiled Sheet: 0.019 in. x 28 in., 28.2¢ per lb.; 0.024 in. x 28 in., 26.9¢ per lb.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, ¼ in. 63¢; 3/16 in. 65¢; ⅛ in. 67¢; B & S Gage 10, 68¢; 12, 72¢; 14, 78¢; 16, 85¢; 18, 93¢; 20, $1.05; 22, $1.27; 24, $1.67. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam in., ¼ to 0.311 in., 74¢; ½ to ¾ in., 57.5¢; 1¼ to 1.749 in., 53¢; 2½ to 5 in., 48.5¢. Other alloys higher. Base: Up to ¾ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated. 0.10 to 0.11 lb, 3.5 in., 62.3¢; 0.22 to 0.25 lb, 5.9 in., 59.3¢; 0.50 to 0.59 lb, 8.6 in., 56.7¢; 1.8 to 2.59 lb, 19.5 in., 53.8¢; 4 to 6 lb, 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ in. to 5/16, $1.40; 5/16 to ⅜, $1.26; ½ to ⅝, 93¢; 1 to 2 in., 76¢; 0.165 to 0.219, ⅝ to ¾, 61¢; 1 to 2 in., 57¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in in.; Up to 1½ in., 10,000 lb; 1½ in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheet and strip, HR or CR, $15; Plate, HR, $12; Wire, rolled and/or drawn, $10; Bar, HR or forged, $6; Forgings, $6.

Nickel and Monel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel
Sheets, cold-rolled	71½	57
Strip, cold-rolled	77½	60
Rods and bars	67½	55
Angles, hot-rolled	67½	55
Plates	69½	56
Seamless tubes	100½	90
Shot and blocks	....	50

Copper, Brass, Bronze

(Freight prepaid on 200 lb includes duty)

	Sheet	Rods	Extruded Shapes
Copper	41.03	....	40.63
Copper, h-r	....	36.88	....
Copper, drawn	....	38.18	....
Low brass	39.15	38.84	....
Yellow brass	38.28	37.97	....
Red brass	40.14	39.83	....
Naval brass	43.08	38.61	38.07
Leaded brass	....	32.63	36.70
Com'l bronze	41.13	40.82	....
Mang. bronze	45.96	40.65	41.41
Phos. bronze	60.20	60.45	....
Muntz metal	40.43	36.74	37.99
Ni silver, 10 pct	49.27	51.49	....
Arch. bronze	....	....	35.11

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	19.00
Aluminum pig	18.00
Antimony, American, Laredo, Tex.	42.00
Beryllium copper, 3.75-4.25% Be	$1.56
Beryllium aluminum 5% Be, Dollars per lb contained Be	$69.00
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.55
Cobalt, 97-99% (per lb)	$2.10 to $2.17
Copper, electro, Conn. Valley	24.50
Copper, Lake, delivered	24.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$200
Lead, St. Louis	16.80
Lead, New York	17.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb	24.50
Magnesium, sticks, 100 to 500 lb	42.00 to 44.00
Mercury, dollars per 76-lb flask, f.o.b. New York	$215-$220
Nickel, electro, f.o.b. New York	53.55
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel	46.75
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$90 to $93
Silver, New York, cents per oz.	90.16
Tin, New York	$1.42
Titanium, sponge	$5.00
Zinc, East St. Louis	17.50
Zinc, New York	18.25
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	29.00
No. 120	28.50
No. 123	28.00
80-10-10 ingot	
No. 305	35.00
No. 315	32.00
88-10-2 ingot	
No. 210	47.50
No. 215	44.50
No. 245	37.00
Yellow ingot	
No. 405	25.50
Manganese bronze	
No. 421	32.75

Aluminum Ingot

(Cents per lb, 30,000 lb lots)

95-5 aluminum-silicon alloys	
0.30 copper, max.	34.50-36.25
0.60 copper, max.	34.25-36.00
Piston alloys (No. 122 type)	31.00-32.50
No. 12 alum. (No. 2 grade)	30.25-31.25
108 alloy	31.50-32.00
195 alloy	32.50-33.00
13 alloy	34.50-36.00
ASX-679	31.50-33.25

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95.97½%	32.50-33.50
Grade 2—92-95%	31.50-32.50
Grade 3—90-92%	30.50-31.50
Grade 4—85-90%	29.50-30.50

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	39½
Electrodeposited	33⅝
Rolled, oval, straight, delivered	38⅞
Forged ball anodes	43
Brass, 80-20	
Cast, oval, 15 in. or longer	34¾
Zinc, oval	26½
Ball anodes	25½
Nickel 99 pct plus	
Cast	70.50
Rolled, depolarized	71.50
Cadmium	$2.80
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79½

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum	52.15
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed	20½
Nickel chloride, 375 lb drum	27½
Silver cyanide, 100 oz lots, per oz.	67¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drums	45.85

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add ⅛¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	23	22¼
Yellow Brass	20½	18¾
Red brass	21½	20¾
Comm. bronze	21¾	21
Mang. bronze	19½	18¾
Brass rod ends	19⅞	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	21.50
No. 2 copper wire	20.00
Light copper	19.00
Refinery brass	19.50*
Radiators	15.00

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	28.00-29.00
No. 2 copper wire	25.00-26.00
Light copper	23.50-24.50
No. 1 composition	25.00-25.50
No. 1 comp. turnings	24.50-25.00
Rolled brass	19.00
Brass pipe	20.50
Radiators	19.00-19.50
Heavy yellow brass	19.00-19.50
Aluminum	
Mixed old cast	21 —22
Mixed new clips	24 —25
Mixed turnings, dry	21 —21½
Pots and Pans	21 —22
Low copper	25

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass	
No. 1 heavy copper and wire	25½—26½
No. 2 heavy copper and wire	24 —25
Light copper	22 —22½
New type shell cuttings	22 —22⅛
Auto radiators (unsweated)	17½—18
No. 1 composition	22 —23
No. 1 composition turnings	21 —22
Clean red car boxes	19 —19½
Cocks and faucets	19 —19½
Mixed heavy yellow brass	16½—17
Old rolled brass	18½—19
Brass pipe	20 —20½
New soft brass clippings	20 —21
Brass rod ends	19½
No. 1 brass rod turnings	19
Aluminum	
Alum. pistons and struts	14 —14½
Aluminum crankcases	17 —17½
2S aluminum clippings	21½—22
Old sheet and utensils	17 —17½
Borings and turnings	13 —14
Misc. cast aluminum	17 —17½
Dural clips (24S)	17 —17½
Zinc	
New Zinc clippings	17 —18
Old Zinc	12½—13
Zinc routings	8½— 9
Old die cast scrap	8 — 8⅛
Nickel and Monel	
Pure nickel clippings	70 —80
Clean nickel turnings	60 —70
Nickel anodes	70 —80
Nickel rod ends	70 —80
New Monel clippings	30 —35
Clean Monel turnings	24 —26
Old sheet Monel	25 —30
Inconel clippings	26 —30
Nickel silver clippings, mixed	13 —15
Nickel silver turnings, mixed	12 —14
Lead	
Soft scrap, lead	16½—16¾
Battery plates (dry)	9½—10
Magnesium	
Segregated solids	9 —10
Castings	5½— 6½
Miscellaneous	
Block tin	110 —120
No. 1 pewter	80 —85
No. 1 auto babbitt	75 —80
Mixed common babbitt	16 —17
Solder joints	23 —24
Siphon tops	75 —80
Small foundry type	18¾—19
Monotype	17½—18
Lino. and stereotype	17
Electrotype	15¾—16
Hand picked type shells	11½—11¾
Lino. and stereo. dross	9½—10
Electro. dross	7½— 8

SCRAP *iron and steel*

markets
prices
trends

Consumers go deeper into stockpiles
. . . Cleveland cautiously optimistic . . .
OPS issues amendments to price order.

Spring sunshine has undoubtedly thawed out the scrap flow to some extent but those who were awaiting miracles from warmer weather have been disillusioned. A moderate improvement cannot have any great effect because operating rates still push the peak and inventories had previously been flattened. Consequently most steelmaking centers were going deeper into stocks this week.

Pittsburgh mills were losing ground and the trade was glumly guessing how long the high operating rate could be held on adequate shipments. Quality of scrap was reported not up to par.

Cleveland was cautiously optimistic. Scrap was moving well and generally mills broke even. Birmingham consumers were on the same basis and also had no margin for stockpiling.

OPS tacked more alterations to the original scrap pricing order last week in Amendment 2 to CPR 5, effective Apr. 24. Now, premiums for alloy content can be paid for specialty as well as openhearth grades. A few more specialty grades were restricted.

Railroad cast iron scrap was put on the same shipping point pricing basis as cast iron scrap of dealer or industrial origin. Pricing of railroad steel scrap from non-operating railroads follow the dealer method.

Slight increases were made in fees for preparing certain grades of scrap and slag scrap suffered minor rollbacks.

PITTSBURGH—Favorite guessing game here revolves around how long the steel industry can maintain the present high operating rate in view of the tight scrap supply. With few exceptions the mills are losing inventory week after week. Quality of the scrap is poor. New ingot capacity, particularly electric furnace, is going to heighten the scramble. OPS inspectors were reported active in the East, where upgrading is becoming increasingly serious.

CHICAGO—The recent upward revision of preparation charges in the OPS schedule is not expected to have too great an effect on the Chicago area scrap market. Tonnage involved in preparing these grades is small and country dealers will benefit most. Some quarters feel the increased preparation charges will put mills and foundries in the scrap business. With consumers buying all the unprepared scrap they can find they may be in a position to force dealers to bid for preparation work and lower the price. It is felt preparation charges should be a minimum not a maximum. Forty-five violations of the pricing schedule, involving mostly upgrading, were reported by OPS officials last week. As yet no action has been taken and the investigation is continuing.

PHILADELPHIA—Yard intake of scrap is improving, particularly on foundry grades since the heating season is over and more boilers are being scrapped. Government scrap is being allocated through dealers for preparation but the yards are still not busy enough. Overgrading has practically been eliminated on cast and openhearth grades, but not on electric furnace material.

NEW YORK—Market conditions here this week were more or less a repetition of last week. Scrap movement continued fair but it could not match the peak operating rate and near-depleted inventories. Mills were still moving into the red, perhaps at a slower rate. Foundries continued on a hand-to-mouth basis and held little hope for a sudden improvement.

DETROIT—Activity is generally slow although indications of a long-time scrap shortage in this area are increasing. Allocations have been necessary on many occasions to keep steel operations going. With most mill inventories falling, more and perhaps larger, allocations are in prospect. Reports of upgrading continue. Industrial scrap is now nearly 100 pct on allocation. A large tonnage of Chrysler scrap may go to Ford under government edict.

CLEVELAND—Scrap is moving rather well here and in the Valley, indicating either an improvement in distribution or that the shortage has hit the bottom and is now on the way up. Most mills are breaking even. All major consumers are working at capacity and not losing additional ground. Quality frequently leaves much to be desired and No. 1 is very scarce in the "free" market. Better weather and accelerated activity, both in collections and in auto wrecking yards have helped. Foundries are a bigger factor in this market than is generally realized, although their problems of supply have also been acute.

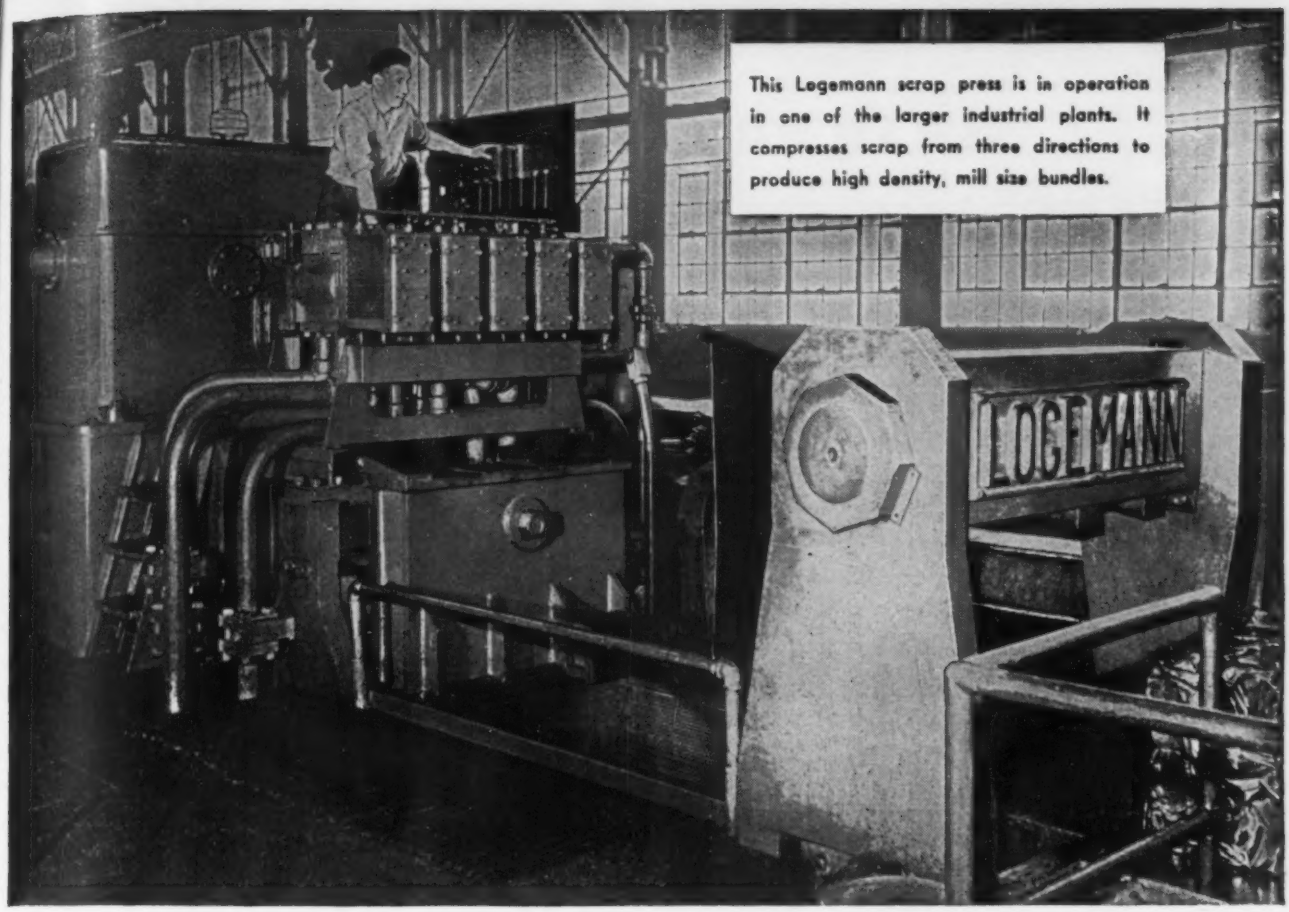
ST. LOUIS—The flow of scrap shows improvement but receipts are still far below consumption. Mills are digging into reserves. As soon as side roads are passable shipments of agricultural scrap are expected to improve. District mills are concerned over allocations of dealers' scrap as well as railroad lists to other markets. Their complaints to the NPA are bringing some relief.

BIRMINGHAM—Enough scrap is coming into the district to take care of immediate needs, but not enough to permit much stockpiling. Dealers' yards are beginning to look bare. Practically everything coming in is sold before it arrives. Brokers say that with better weather northern mills should be able to get more scrap locally and leave more for shipment South.

CINCINNATI—Demand for all grades is keeping the scrap market here in turmoil. Mill inventories are low, with little prospect of speedy improvement. Foundries are scrambling for tonnage, some are on allocation, and the margin at others is at a minimum. Yards are shipping everything out as fast as they can prepare it.

BOSTON—Acceptance of a new water rate covering major coast cities in the New England area is reported, but as yet has not been announced from Washington. The new rate is said to be $36 per gross ton. The new inland rate is expected to be $35. The railroad rate from Boston is $34.17. Shipments out of Boston have slowed pending clarification of rates.

BUFFALO—Scrap collections have improved but new business is still limited. Seasonal gains are helping the flow of industrial and railroad scrap. Midstate scrap receipts are light. A top mill has again resorted to going into stocks because of the recent shutdown of a basic iron furnace.



This Logemann scrap press is in operation in one of the larger industrial plants. It compresses scrap from three directions to produce high density, mill size bundles.

Self-Contained . . . .
Triple Compression . .
Automatically Controlled

LOGEMANN SCRAP PRESSES

handle high tonnages with minimum labor . . . *at low cost*

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LOGEMANN METAL BALERS

. . . are built in a large range of sizes to meet specific conditions. Let Logemann's engineering service help you arrive at the most efficient and economical way of handling your scrap.

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The compact unit illustrated is completely self-contained with oil tank and pump located directly over the press . . . utilizing the advantages of short pipe lines. Automatic controls, mounted in front of pump, give the operator full visibility at all times. Controls operate rams successively within a single rigid box. There is no complex construction which means there is *no need for specially-trained maintenance crews.*

Both two-ram and three-ram models are available with automatic controls or for manual manipulation.

Logemann Bros. Co. have specialized in the production of scrap metal presses for sheet mills, stamping plants, scrap yards, and metal manufacturing plants of all types for nearly 75 years. Write for full information — please state the nature of your scrap and tonnage.

LOGEMANN BROTHERS COMPANY
3164 W. Burleigh Street • Milwaukee 10, Wisconsin

Iron and Steel

SCRAP PRICES

(Maximum basing point prices, per gross ton, as set by OPS, effective Feb. 7, 1951. Shipping point and delivered prices calculated as shown below.)

Switching Charge (Dollars per gross ton) →	Pittsburgh .99	Johnstown .75	Brackenridge .53	Butler .65	Midland .75	Monessen .51	Sharon .75	Youngstown .75	Canton .51	Steubenville .51	Warren .75	Weirton .70	Cleveland .76	Buffalo .83	Cincinnati .65	Middletown .26	Chicago 1.34	Claymont .79	Coatesville .50	Conshohocken .20	Harrisburg .51	Phoenixville .51	Sparrows Pt. .20	Bethlehem .52	Ashland, Ky. .47	Kokomo, Ind. .51	Portsmouth, O. .51	St. Louis .51	Detroit .95	Duluth .50	Kansas City .78	Birmingham .50	Alabama City .43	Atlanta .51	Minnequa .33	Houston .87	Los Angeles .86	Pittsburg, Cal. .65	Portland, Ore. .82	San Francisco .88	Seattle .88
Basing Points →	Pittsburgh	Johnstown	Brackenridge	Butler	Midland	Monessen	Sharon	Youngstown	Canton	Steubenville	Warren	Weirton	Cleveland	Buffalo	Cincinnati	Middletown	Chicago	Claymont	Coatesville	Conshohocken	Harrisburg	Phoenixville	Sparrows Pt.	Bethlehem	Ashland, Ky.	Kokomo, Ind.	Portsmouth, O.	St. Louis	Detroit	Duluth	Kansas City	Birmingham	Alabama City	Atlanta	Minnequa	Houston	Los Angeles	Pittsburg, Cal.	Portland, Ore.	San Francisco	Seattle
GRADES — OPS No.																																								
No. 1 heavy melting — 1	$44.00							$44.00					$43.00				$42.50						$42.00					$41.00	$41.15	$40.00	$39.50	$39.00		$38.00	$37.00					$35.00	
No. 2 heavy melting — 2	42.00							42.00					41.00				40.50						40.00					39.00	39.15	38.00	37.50	37.00		36.00	35.00					33.00	
No. 1 busheling — 3	44.00							44.00					43.00				42.50						42.00					41.00	41.15	40.00	39.50	39.00		38.00	37.00					35.00	
No. 1 bundles — 4	44.00							44.00					43.00				42.50						42.00					41.00	41.15	40.00	39.50	39.00		38.00	37.00					35.00	
No. 2 bundles — 5	41.00							41.00					40.00				39.50						39.00					38.00	38.15	37.00	36.50	36.00		35.00	34.00					32.00	
Machine shop turnings — 6	34.00							34.00					33.00				32.50						32.00					31.00	31.15	30.00	29.50	29.00		28.00	27.00					25.00	
Mixed borings and turnings — 7	38.00							38.00					37.00				36.50						36.00					35.00	35.15	34.00	33.50	33.00		32.00	31.00					29.00	
Shovelling turnings — 8	38.00							38.00					37.00				36.50						36.00					35.00	35.15	34.00	33.50	33.00		32.00	31.00					29.00	
Cast iron borings — 10	38.00							38.00					37.00				36.50						36.00					35.00	35.15	34.00	33.50	33.00		32.00	31.00					29.00	
No. 1 chemical borings — 26	41.00							41.00					40.00				39.50						39.00					38.00	38.15	37.00	36.50	36.00		35.00	34.00					32.00	
Forge crops — 11	51.50							51.50					50.50				50.00						49.50					48.50	48.65	47.50	47.00	46.50		45.50	44.50					42.50	
Bar crops and plate — 12	49.00							49.00					48.00				47.50						47.00					46.00	46.15	45.00	44.50	44.00		43.00	42.00					40.00	
Punchings and plate — 14	46.50							46.50					45.50				45.00						44.50					43.50	43.65	42.50	42.00	41.50		40.50	39.50					37.50	
Electric furnace bundles — 15	46.00							46.00					45.00				44.50						44.00					43.00	43.15	42.00	41.50	41.00		40.00	39.00					37.00	
Cut struct., plate, 3 ft and less — 16	47.00							47.00					46.00				45.50						45.00					44.00	44.15	43.00	42.50	42.00		41.00	40.00					38.00	
Cut struct., plate, 2 ft and less — 17	49.00							49.00					48.00				47.50						47.00					46.00	46.15	45.00	44.50	44.00		43.00	42.00					40.00	
Cut struct., plate, 1 ft and less — 18	50.00							50.00					49.00				48.50						48.00					47.00	47.15	46.00	45.50	45.00		44.00	43.00					41.00	
Foundry steel, 2 ft and less — 20	46.00							46.00					45.00				44.50						44.00					43.00	43.15	42.00	41.50	41.00		40.00	39.00					37.00	
Foundry steel, 1 ft and less — 21	48.00							48.00					47.00				46.50						46.00					45.00	45.15	44.00	43.50	43.00		42.00	41.00					39.00	
Heavy trimmings — 24	43.00							43.00					42.00				41.50						41.00					40.00	40.15	39.00	38.50	38.00		37.00	36.00					34.00	
No. 1 RR heavy melting — RR 1	46.00							46.00					45.00				44.50						44.00					43.00	43.15	42.00	41.50	41.00		40.00	39.00					37.00	
Scrap rails, random lengths — RR 14	48.00							48.00					47.00				46.50						46.00					45.00	45.15	44.00	43.50	43.00		42.00	41.00					39.00	
Scrap rails, 3 ft and less — RR 16	51.00							51.00					50.00				49.50						49.00					48.00	48.15	47.00	46.50	46.00		45.00	44.00					42.00	
Scrap rails, 2 ft and less — RR 17	52.00							52.00					51.00				50.50						50.00					49.00	49.15	48.00	47.50	47.00		46.00	45.00					43.00	
Scrap rails, 18 in. and less — RR 18	54.00							54.00					53.00				52.50						52.00					51.00	51.15	50.00	49.50	49.00		48.00	47.00					45.00	
Rerolling rails — RR 15	53.00							53.00					52.00				51.50						51.00					50.00	50.15	49.00	48.50	48.00		47.00	46.00					44.00	
Uncut tires — RR 20	48.00							48.00					47.00				46.50						46.00					45.00	45.15	44.00	43.50	43.00		42.00	41.00					39.00	
Cut tires — RR 21	51.00							51.00					50.00				49.50						49.00					48.00	48.15	47.00	46.50	46.00		45.00	44.00					42.00	
Cut bolsters and side frames — RR 23	49.00							49.00					48.00				47.50						47.00					46.00	46.15	45.00	44.50	44.00		43.00	42.00					40.00	
RR specialties — RR 24, 28, 29	51.00							51.00					50.00				49.50						49.00					48.00	48.15	47.00	46.50	46.00		45.00	44.00					42.00	
Solid steel axles — RR 25	58.00							58.00					57.00				56.50						56.00					55.00	55.15	54.00	53.50	53.00		52.00	51.00					49.00	
No. 3 steel wheels — RR 27	51.00							51.00					50.00				49.50						49.00					48.00	48.15	47.00	46.50	46.00		45.00	44.00					42.00	

Cast Scrap

(F.o.b. all shipping points)

Grades	OPS No.	
Cupola cast	1	$49.00
Charging box cast	2	47.00
Heavy breakable cast	3	45.00
Cast iron brake shoes	5	41.00
Stove plate	6	46.00
Clean auto cast	7	52.00
Unstripped motor blocks	8	43.00
Cast iron carwheels	9	47.00
Malleable	10	55.00
Drop broken mach'y. cast	11	52.00

Ceiling price of clean cast iron foundry runouts or prepared cupola drops is 75 pct of corresponding grade.

SWITCHING DISTRICTS—These basing points include the indicated switching districts: Pittsburgh; Bessemer, Homestead, Duquesne, Munhall. Cincinnati: Newport. St. Louis; Granite City, East St. Louis, Madison, and Federal, Ill. San Francisco; South San Francisco, Niles, Oakland. Claymont; Chester. Chicago; Gary.

SHIPPING POINT PRICES (Except RR scrap)—For shipping points within basing points, the ceiling shipping point price is the basing point price, less switching charge. The ceiling for shipping points outside basing points is the basing point price yielding the highest shipping point price, less the lowest established freight charge. Dock charge, where applicable, is $1.25 per gross ton except: Memphis, 95¢; Great Lakes ports, $1.50, and New England ports, $1.75. Maximum shipping point price on No. 1 heavy melting steel in New York City is $36.99 per gross ton with set differentials for other grades. Hudson and Bergen County, N. J., shipping point prices are computed from Bethlehem basing point. All New Jersey computations use all-rail transport. Ceiling need not fall below $32 per gross ton for No. 1 heavy melting steel, with set differentials for other grades. Cast scrap shipping point prices are given in table.

DELIVERED PRICES (RR scrap) — Ceiling on-line price of a RR operating in a basing point is the top in the highest priced basing point in which the RR operates. For off-line prices, RR's not operating in basing point, non-operating RR's, and RR scrap sold by someone other than a RR see text of order, THE IRON AGE, Feb. 8, 1951, p. 137-C.

DELIVERED PRICES (Except RR scrap)—Ceiling is the shipping point price plus actual freight charge, tax included. Dock charges, where applicable, are as above.

UNPREPARED SCRAP—Ceiling price is $8 a ton less than prepared base grades (No. 1 heavy & No. 1 RR heavy). Scrap suitable for compressing into No. 1 bundles is $6 less than No. 1 bundles; suitable for compressing into No. 2 bundles, $8 less than No. 2 bundles. For cast material requiring special preparation, price is breakable cast less preparation costs.

COMMISSIONS—Brokers are permitted a maximum of $1 per gross ton commission which must be separate on the bill.

ALLOY PREMIUMS—These alloy extras are permitted: Nickel; $1.25 may be added to price of No. 1 heavy for each 0.25 pct nickel between 1 and 5.25 pct. **Molybdenum**; $2 may be added to price of No. 1 heavy for molybdenum over 0.15 pct, $3 for content over 0.65 pct. **Manganese**; $4 may be added to price of No. 1 heavy or No. 1 RR heavy for content over 10 pct if scrap is in sizes over 8 x 12 x 24 in., $14 if less than 8 x 12 x 24 in. Manganese premium applicable only if sold for electric furnace use or on NPA allocation. **Silicon:** electric furnace and foundry grade adjustments are not applicable if silicon content is between 0.5 and 1.75 pct. **Chromium**: $1 may be added if scrap conforms to SAE 52100 analysis. **Multiple Alloys**; if scrap contains two premium alloy elements, total premium may not exceed ceiling premium for any one contained alloy.

RESTRICTONS ON USE—Ceiling prices on some scrap items may fluctuate with use by consumers. If some scrap is purchased for its established specialized use, the ceiling price set in the order stands. But if some special grades are purchased for other uses, the ceiling price charge shall be the price of the scrap grade being substituted. For example, the price established for Grade 28 (wrought iron) may be charged only when sold to a producer of wrought iron. Otherwise the ceiling price shall not exceed the ceiling price for the corresponding grade of basic openhearth. Restrictions on use are placed on the following grades: Chemical borings, wrought iron and rerolling rails, cupola cast, billet, bloom, and forge crops, Nos. 1 and 2 chemical borings. Ceiling prices on billet bloom and forge crops, alloy-free turnings, and heavy turnings may be charged only when shipped directly from industrial producer. NPA prohibits openhearth users from buying electric furnace grades, Nos. 11 through 18, foundry grades, Nos. 20 and 21 and cast grades, 1, 7, 9 and 11.

CEILING INTRANSIT PREPARATION CHARGES (Dollars per gross ton)

No. 1 heavy; No. 2 heavy; No. 1 RR heavy; No. 2 RR heavy; No. 1 busheling; No. 2 bundles; electric furnace bundles	$ 8.00
No. 1 bundles; briquetted turnings or cast iron borings; No. 1 RR sheet scrap	6.00
Crushing machine shop turnings	3.00
Bar crops and plate, cast steel, punchings and plate, cut structural and plate, 3 ft and under, foundry steel, 2 ft and under, wrought iron	10.00
Structural, plate scrap, 2 ft and less, foundry steel 1 ft and less	11.00
Structural and plate scrap, 1 ft and less	12.00
Rails, 3 ft & less; cut tires; cut bolsters & side frames	4.00
Rails, 2 ft & less	5.00
Rails, 18 in. & less	7.00

Hamilton, Ontario

(Consumers buying prices, del'd gross ton)

Hvy. melting steel	$30.00
No. 1 bundles	30.00
No. 2 bundles	29.50
Mechanical bundles	28.00
Mixed, steel scrap	26.00
Rails, remelting	30.00
Rails, rerolling	33.00
Bushelings	24.50
Bushelings, prepared new factory	28.00
Bushelings, unprepared new factory	23.00
Short steel turnings	23.00
Mixed borings, turnings	23.00
Cast scrap	48.00 to 50.00

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SAN FRANCISCO, CALIFORNIA Pacific Gas & Elec. Co., Bldg.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Berman

Comparison of Prices

Steel prices in this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	Apr. 24, 1951	Apr. 17, 1951	Mar. 27, 1951	Apr. 25, 1950
Hot-rolled sheets	3.60	3.60	3.60	3.35
Cold-rolled sheets	4.35	4.35	4.35	4.10
Galvanized sheets (10 ga)	4.80	4.80	4.80	4.40
Hot-rolled strip	3.50	3.50	3.50	3.25
Cold-rolled strip	4.75	4.75	4.75	4.21
Plate	3.70	3.70	3.70	3.50
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R-strip (No. 302)	36.50	36.50	36.50	33.00
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes.	$7.50	$7.50	$7.50	$7.50
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.60
Special coated mfg. ternes	6.35	6.35	6.35	6.50
Bars and Shapes: (cents per pound)				
Merchant bars	3.70	3.70	3.70	3.45
Cold finished bars	4.55	4.55	4.55	*4.145
Alloy bars	4.30	4.30	4.30	3.95
Structural shapes	3.65	3.65	3.65	3.40
Stainless bars (No. 302)	31.25	31.25	31.25	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.85	4.85	4.85	4.50
Rails: (dollars per 100 lb)				
Heavy rails	$3.60	$3.60	$3.60	$3.40
Light rails	4.00	4.00	4.00	3.75
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$56.00	$56.00	$56.00	$54.00
Slabs, rerolling	56.00	56.00	56.00	54.00
Forging billets	66.00	66.00	66.00	63.00
Alloy blooms billets, slabs	70.00	70.00	70.00	66.00
Wire Rod and Skelp: (cents per pound)				
Wire rods	4.10	4.10	4.10	3.85
Skelp	3.35	3.35	3.35	3.15

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*

Pig Iron: (per gross ton)	Apr. 24, 1951	Apr. 17, 1951	Mar. 27, 1951	Apr. 25, 1950
No. 2 foundry, del'd Phila.	$57.77	$57.77	$57.77	$50.42
No. 2, Valley furnace	52.50	52.50	52.50	46.50
No. 2, Southern Cin'ti	55.58	55.58	55.58	49.08
No. 2, Birmingham	48.88	48.88	48.88	42.38
No. 2, foundry, Chicago†	52.50	52.50	52.50	46.50
Basic del'd Philadelphia	56.92	56.92	56.92	49.92
Basic, Valley furnace	52.00	52.00	52.00	46.00
Malleable, Chicago†	52.50	52.50	52.50	46.50
Malleable, Valley	52.50	52.50	52.50	46.50
Charcoal, Chicago	70.56	70.56	70.56	68.56
Ferromanganese‡	186.25	186.25	186.25	173.40

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

Scrap: (per gross ton)	Apr. 24, 1951	Apr. 17, 1951	Mar. 27, 1951	Apr. 25, 1950
No. 1 steel, Pittsburgh	$44.00*	$44.00*	$44.00*	$33.75
No. 1 steel, Phila. area	42.50*	42.50*	42.50*	25.50
No 1 steel, Chicago	42.50*	42.50*	42.50*	29.50
No. 1 bundles, Detroit	41.15*	41.15*	40.00*	30.25
Low phos. Young'n	46.50*	46.50*	46.50*	35.75
No. 1 cast, Pittsburgh	49.00†	49.00†	49.00†	40.50
No. 1 cast, Philadelphia	49.00†	49.00†	49.00†	37.50
No. 1 cast, Chicago	49.00†	49.00†	49.00†	42.50

*Basing Pt. †Shipping Pt.
Not including broker's fee after Feb. 7, 1951.

Coke: Connellsville: (per net ton at oven)	Apr. 24, 1951	Apr. 17, 1951	Mar. 27, 1951	Apr. 25, 1950
Furnace coke, prompt	$14.75	$14.75	$14.75	$14.25
Foundry coke, prompt	17.75	17.75	17.75	16.25

Nonferrous Metals: (cents per pound to large buyers)	Apr. 24, 1951	Apr. 17, 1951	Mar. 27, 1951	Apr. 25, 1950
Copper, electro, Conn.	24.50	24.50	24.50	19.50
Copper, Lake, Conn.	24.625	24.625	24.625	19.625
Tin, Straits, New York	$1.42†	$1.42*	$1.34	76.75
Zinc, East St. Louis	17.50	17.50	17.50	11.00
Lead, St. Louis	16.80	16.80	16.80	10.55
Aluminum, virgin	19.00	19.00	19.00	17.00
Nickel, electrolytic	53.55	53.55	53.55	42.97
Magnesium, ingot	24.50	24.50	24.50	20.50
Antimony, Laredo, Tex.	42.00	42.00	42.00	24.50

†Tentative. *Revised.

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 130 of May 12, 1949, issue.)

	Finished Steel Base Price	Pig Iron	Scrap Steel
Apr. 24, 1951	4.131¢ per lb.	$52.69 per gross ton	$43.00 per gross ton
One week ago	4.131¢ per lb.	52.69 per gross ton	43.00 per gross ton
One month ago	4.131¢ per lb.	52.69 per gross ton	43.00 per gross ton
One year ago	3.837¢ per lb.	46.38 per gross ton	29.58 per gross ton

	Finished Steel Base Price High	Finished Steel Base Price Low	Pig Iron High	Pig Iron Low	Scrap Steel High	Scrap Steel Low
1951	4.131¢ Jan. 2	4.131¢ Jan. 2	$52.69 Jan. 2	$52.69 Jan. 2	$47.75 Jan. 30	$43.00 Feb. 7
1950	4.131¢ Dec. 1	3.837¢ Jan. 3	52.69 Dec. 12	45.88 Jan. 3	45.13 Dec. 19	26.25 Jan. 3
1949	3.837¢ Dec. 27	3.3705¢ May 3	46.87 Jan. 18	45.88 Sept. 6	43.00 Jan. 4	19.33 June 28
1948	3.721¢ July 27	3.193¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6	43.16 July 27	39.75 Mar. 9
1947	3.193¢ July 29	2.848¢ Jan. 1	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.848¢ Dec. 31	2.464¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.464¢ May 29	2.396¢ Jan. 1	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.396¢	2.396¢	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.396¢	2.396¢	23.61	23.61	$19.17	$19.17
1942	2.396¢	2.396¢	23.61	23.61	19.17	19.17
1941	2.396¢	2.396¢	$23.61 Mar. 20	23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1938	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	32.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June 1
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June 8
1932	1.89196¢ July 5	1.83910¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Can you match these production figures?

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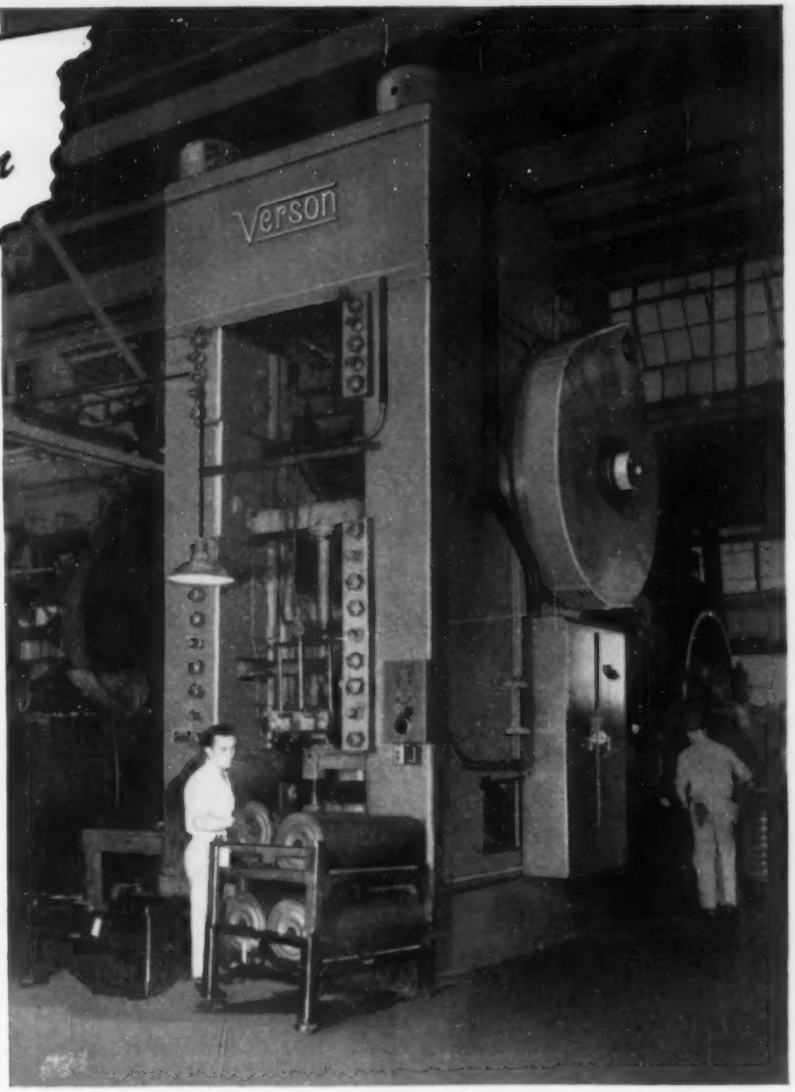

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IRON AGE

STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$52.00[1]													
Alloy, net ton	$54.00[1,17]													$54.00[21]
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	$56.00[1,8]	$56.00[1]	$56.00[1]						$56.00[3]		$56.00[3]			
Carbon forging billets, net ton	$66.00[1,8]	$66.00[1,4]	$66.00[1]	$66.00[4]	$66.00[4]				$66.00[3,4]	$73.00[26]	$66.00[3]			$69.00[21]
Alloy, net ton	$70.00[1,17,6]	$70.00[1,4]	$70.00[1,6]		$70.00[4]			$70.00[3]	$70.00[3,4]	$77.00[26]	$70.00[3]			$73.00[21]
PIPE SKELP	3.35[1] 3.45[5]						3.35[1,4]							
WIRE RODS	4.10[2] 4.30[18]	4.10[2,4,33]	4.10[6]	4.10[2]			4.10[6]		4.10[85]		4.10[3]	4.20[3]		
SHEETS Hot-rolled (18 ga. & hvr.)	3.60[1,8,9,15] 3.75[28]	3.60[8,23]	3.60[1,6,8]	3.60[4,8]		3.60[7]	3.60[1,4,6] 4.00[13]		3.60[3]	4.00[26]		3.60[3]	4.30[22]	3.80[12] 4.40[47]
Cold-rolled	4.35[1,8,9,15,7]		4.35[1,6,8]	4.35[4,8]		4.35[7]	4.35[4,6]		4.35[3]			4.35[3]	5.05[22]	4.55[12]
Galvanized (10 gage)	4.80[1,9,15]		4.80[1,8]		4.80[4]	4.80[7]	5.50[44] 6.00[64]					4.60[3]	5.50[22]	
Enameling (12 gage)	4.65[1]		4.65[1,8]	4.65[4]		4.65[7]	4.65[6]						5.35[22]	
Long terne (10 gage)	5.20[9,15]		5.20[1]			5.20[7]	6.00[64]							
Hi str. low alloy, h.r.	5.40[1,5] 5.75[9]	5.40[1]	5.40[1,8] 5.90[6]	5.40[4,5]			5.40[1,4,13] 5.90[6]		5.40[3]	5.65[26]		5.40[3]		5.95[12]
Hi str. low alloy, c.r.	6.55[1,5] 6.90[9]		6.55[1,8] 7.05[6]	6.55[4,5]			6.55[4] 7.05[6]		6.55[3]			6.55[3]		7.10[12]
Hi str. low alloy, galv.	7.20[1]											6.75[3]		
STRIP Hot-rolled	3.60[9], 4.00[41,58], 3.75[28] 3.50[5,7]	3.50[66]	3.50[1,6,8]			3.50[7]	3.50[1,4,6] 4.00[13]		3.50[3,4]	3.90[26]	3.50[3]	3.50[3]		4.40[47] 3.80[12]
Cold-rolled	4.85[58,7,9] 5.00[28] 5.35[40,63,58]	4.90[8,66]	4.90[8]	4.65[2,5]		4.65[7]	4.65[4,6] 5.25[48,49] 5.35[13,40]		4.65[3]			4.65[3]		4.85[12] 5.45[47] 5.60[48,61]
Hi str. low alloy, h.r.	5.75[9]		5.50[1] 5.30[8], 5.80[6]				4.95[4], 5.50[1] 5.40[13], 5.80[6]		4.95[3]	5.55[26]		4.95[3]		5.95[12]
Hi str. low alloy, c.r.	7.20[9]			{6.55[2] 6.70[5]			{6.20[4], 6.55[13] 7.05[6]		6.40[3]			6.40[3]		
TINPLATE† Cokes, 1.25-lb base box (1.50 lb, add 25¢)	$8.45[1,8,9,15]		$8.45[1,6,8]				$8.45[4]					$8.55[3]		
Electrolytic 0.25, 0.50, 0.75 lb box	0.25 lb base box, $7.15[1,4,8,9]; $7.25[3,11]; $7.35[22] 0.50 lb, add 25¢; 0.75 lb add 65¢													
BLACKPLATE, 29 gage Hollowware enameling	5.85[1] 6.15[15]		5.85[1]				5.30[4]							
BARS Carbon steel	3.70[1,5] 3.85[9]	3.70[1,4,23]	3.70[1,4,6,8]	3.70[4]	3.70[4]		3.70[1,4,6]		3.70[3,4]		3.70[3]			3.85[21]
Reinforcing	3.70[1,8]	3.70[4]	3.70[1,6,8]	3.70[4]			3.70[1,4,6]		3.70[3,4]		3.70[3]	3.70[3]		
Cold-finished	4.55[2,4,5,52,69,71]	4.55[2,23,70]	4.55[4,74,73]	4.55[2]	4.55[4,62]		4.55[6,57]		4.60[70]					4.70[64]
Alloy, hot-rolled	4.30[1,17]	4.30[1,4,23]	4.30[1,6,8]		4.30[4]		4.30[1,6]	4.30[6]	4.30[3,4]		4.30[3]			4.45[21] 4.65[12]
Alloy, cold-drawn	5.40[17,52,69,71,2]	5.40[4,23,69,70,73] 5.45[2]	5.40[4,73,74]		5.40[4,32]		5.40[6,25,57]	5.40[3]	5.40[3]					5.55[64]
Hi str. low alloy, h.r.	5.55[1,5]		5.55[1,8] 6.05[6]	5.55[4,5]			5.55[1] 6.05[6]	5.55[3]	5.55[3]		5.55[3]			
PLATE Carbon steel	3.70[1,5,15] 4.00[9]	3.70[1,23]	3.70[1,6,8]	3.70[4,8]			3.70[1,4,6] 3.95[13]		3.70[3]	4.15[26]	3.70[3]	3.70[3]	4.40[22]	
Floor plates	4.75[1]	4.75[1]	4.75[8]	4.75[8]						4.75[26]				
Alloy	4.75[1]	4.75[1]	4.75[1]				5.20[13]			5.05[26]	4.75[3]	4.75[3]		
Hi str. low alloy	5.65[1,5]	5.65[1]	5.65[1,8] 6.15[6]	5.65[4,5]			{5.65[4] 5.70[13] 6.15[6]			5.90[26]	5.65[3]	5.65[3]		
SHAPES, Structural	3.65[1,8] 3.90[9]	3.65[1,23]	3.65[1,8]					3.70[3]	3.70[3]		3.70[3]			
Hi str. low alloy	5.50[1,5]	5.50[1]	5.50[1,8] 6.00[6]				6.00[6]	5.50[3]	5.50[3]		5.50[3]			
MANUFACTURERS' WIRE Bright	4.85[2,5] 5.10[18]	4.85[3] 4.33-.34		4.85[2]			4.85[6]	Kokomo—4.95[30] 4.85[35]			4.85[3]	4.95[3]	Duluth—4.85[2]	
PILING, Steel Sheet	4.45[1]	4.45[1]	4.45[8]						4.45[3]					

STEEL PRICES

Smaller numbers indicate producing companies. See key at right. Prices are in cents per lb unless otherwise noted. Extras apply.

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
			F=$79.00[10]		INGOTS Carbon forging, net ton
	$62.00[83]		F=$80.00[19]		Alloy, net ton
		$56.00[11]	F=$75.00[19]		BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	$74.00[83]	$66.00[11]	F=$85.00[19] SF, LS, S=$85.00[62]	Geneva=$66.00[16]	Carbon forging billets, net ton
	$78.00[83]		F=$89.00[19] LA=$90.00[62]		Alloy net ton
					PIPE SKELP
	4.50[83]	4.10[4,11]	SF=4.90[3], F=4.90[19] LA=4.90[24,62]	Worcester=4.40[2] Minnequa=4.35[14] Portsmouth=4.30[20]	WIRE RODS
		3.60[4,11]	SF, LA=4.30[24] F=4.55[19]	Niles=5.25[84], Geneva=3.70[16] Ashland=3.60[7]	SHEETS Hot-rolled (18 ga. & hvr.)
		4.35[11]	SF=5.30[24] F=5.30[19]		Cold-rolled
		4.80[4,11]	SF, LA=5.55[24]	Ashland=4.80[7] Kokomo=5.20[30]	Galvanized (10 gage)
				Ashland=4.65[7]	Enameling (12 gage)
					Long ternes (10 gage)
		5.40[11]	F=6.35[19]		Hi str. low alloy, h.r.
			F=7.50[19]		Hi str. low alloy, c.r.
					Hi str. low alloy, galv.
4.10[83]	4.90[83]	3.50[4,11]	SF, LA=4.25[24,62] F=4.75[19], S=4.50[62]	Atlanta=4.05[65] Minnequa=4.55[14] Ashland=3.50[7]	STRIP Hot-rolled
			F=6.30[19] LA=6.40[27]	New Haven=5.15[2], 5.85[68] Trenton=6.00[45]	Cold-rolled
		5.30[11]	F=6.20[19] SF, LA=6.05[62] S=6.30[62]		Hi str. low alloy, h.r.
			F=6.95[19]		Hi str. low alloy, c.r.
		$8.55[11]	SF=9.20[24]		TINPLATE Cokes, 1.25-lb base box (1.50 lb, add 25¢)
					Electrolytic 0.25, 0.50, 0.75 lb box
					BLACKPLATE, 29 gage Hollowware enameling
4.30[83]	4.10[83]	3.70[4,11]	SF, LA=4.40[24]	Atlanta=4.25[65] Minnequa=4.15[14]	BARS Carbon steel
4.38[83]	4.10[83]	3.70[4,11]	SF, S=4.45[62] F=4.40[19], LA=4.40[62]	Atlanta=4.25[65] Minnequa=4.50[14]	Reinforcing
			LA=6.00[4]	Newark=5.00[69] Putnam=5.10[69] Hartford=5.10[4]	Cold-finished
4.90[83]	4.70[83]		LA=5.35[62] F=5.35[19]		Alloy, hot-rolled
				Newark=5.75[69] Worcester=5.75[2] Hartford=5.85[4]	Alloy, cold-drawn
		5.55[11]	F=6.60[19] SF, S=6.30[62] LA=6.25[62]		Hi str. low alloy, h.r.
	4.10[83]	3.70[4,11]	F=4.30[19] S=4.60[62]	Claymont=4.15[29] Coatesville=4.15[21] Minnequa=4.50[14] Geneva=3.70[16]	PLATE Carbon steel
				Harrisburg=5.25[33]	Floor plates
			F=5.70[19]	Coatesville=5.25[21] Claymont=4.85[29]	Alloy
		5.65[11]	F=6.25[19] S=6.55[62]	Geneva=5.65[16]	Hi str. low alloy
4.25[83]	4.05[83]	3.60[4] 3.65[11]	SF=4.20[62] F=4.25[16] LA=4.25[24,62] S=4.30[62]	Geneva 3.65[16] Minnequa 4.10[14]	SHAPES, Structural
		5.50[11]	SF=6.10[62,19] SF=6.00[62] LA=6.05[62]	Geneva=5.50[16]	Si str. low alloy
5.45[83]	5.25[83]	4.85[4,11]	SF, LA=5.80[24]	Atlanta=5.10[65] Worcester=5.15[2] Minnequa=5.10[14] Portsmouth=5.25[20]	MANUFACTURERS' WIRE Bright

Key to Steel Producers

1 U. S. Steel Co., Pittsburgh
2 American Steel & Wire Co., Cleveland
3 Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Armco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Steel Corp., Oakland, Calif.
20 Portsmouth Div., Detroit Steel Corp., Detroit
21 Lukens Steel Co., Coatesville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24 Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Claymont Steel Corp., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill.
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Iron & Steel Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass.
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 Tremont Nail Co., Wareham, Mass.
54 Firth Sterling St. & Carbide Corp., McKeesport
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
60 American Cladmetals Co., Carnegie, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Fran.
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wycoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Hammond, Ind.
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forging Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City
84 Plymouth Steel Co., Detroit
85 Wickwire Spencer Steel, Buffalo
86 Angell Nail and Chaplet, Cleveland
87 Mid-States Steel & Wire, Crawfordsville, Ind.
88 National Supply, Pittsburgh, Pa.
89 Wheatland Tube Co., Wheatland, Pa.
90 Mercer Tube & Mfg. Co., Sharon, Pa.
91 Woodward Iron Co., Woodward, Ala.
92 Sloss-Sheffield Steel & Iron Co., Birmingham
93 Hanna Furnace Corp., Detroit
94 Interlake Iron Corp., Cleveland
95 Lone Star Steel Co., Dallas
96 Mystic Iron Works, Everett, Mass.
97 Jackson Iron & Steel Co., Jackson, O.
98 Globe Iron Co., Jackson, O.
99 Pittsburgh Coke & Chemical Co., Pittsburgh
100 Shenango Furnace Co., Pittsburgh
101 Tennessee Products & Chem. Corp., Nashville
102 Koppers Co., Inc., Granite City, Ill.
103 Page Steel & Wire Div., American Chain & Cable, Monessen, Pa.
104 Wallingford Steel Co., Wallingford, Conn.

STAINLESS STEELS

Base price, cents per lb. f.o.b. mill.

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	14.25	15.00	16.50	16.00	24.25	19.75	21.50	12.75	14.75	13.00
Slabs, billets rerolling	18.50	19.75	21.75	20.75	31.75	26.00	28.25	16.50	20.00	16.75
Forg. discs, die blocks, rings	34.00	34.00	36.50	35.50	52.50	40.00	44.50	28.00	28.50	28.50
Billets, forging	26.25	26.25	28.75	27.50	41.00	31.00	34.75	21.50	22.00	22.00
Bars, wires, structurals	31.25	31.25	33.75	32.75	48.75	36.75	41.25	25.75	26.25	26.25
Plates	33.00	33.00	35.00	35.00	51.50	40.50	45.00	27.00	27.50	27.50
Sheets	41.00	41.00	43.00	43.00	58.50	49.00	53.50	36.50	37.00	39.00
Strip, hot-rolled	26.50	28.00	32.25	30.00	48.25	36.75	41.00	23.50	30.25	24.00
Strip, cold-rolled	34.00	36.50	40.00	38.50	58.50	48.00	52.00	30.60	37.00	31.00

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38 (type 316 add 5¢), 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 45.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38 (type 316 add 5¢); W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, Pa., 13; Butler, Pa., 7; Wallingford, Conn., 104.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42; Ft. Wayne, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28; Monessen, 103; Syracuse, N. Y., 17; Bridgeville, Pa., 59.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44; Syracuse, N. Y., 17.

Plates: Brackenridge, Pa., 28 (type 416 add ½¢); Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28; Washington, Pa., 39.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1; Syracuse, N. Y., 17.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Axles	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer-1	3.60	4.00	4.70					
Chicago-4				6.15				
Ensley-11	3.60	4.00						
Fairfield-11		4.00	4.40			8.60	4.50	
Gary-1	3.60	4.00					4.50	
Ind. Harbor-6	3.60		4.70	6.15	5.60	8.60	4.50	
Johnstown-3		4.00			5.60	8.60		
Joliet-1		4.00	4.70					
Kansas City-83				6.45				8.85
Lackawanna-3	3.60	4.00	4.70			8.60	4.50	
Lebanon-3				6.15				8.85
Minnequa-14	3.60	4.50	4.70	6.15		8.60	4.50	8.85
Pittsburgh-77						9.35		9.85
Pittsburgh-78								9.85
Pittsburgh-5				6.15				
Pittsburg-24							4.65	
Seattle-62				6.65			4.65	
Steelton-3	3.60		4.70				4.50	
Struthers-6				6.15				
Torrance-24							4.65	
Youngstown-4				6.15				

BOILER TUBES

$ Per 100 ft., cut, 10 to 24 ft.

F.o.b. Mill	Size		Seamless		Elec. Weld	
	Od-In.	B. W. Ga.	H. R.	C.D.	H. R.	C.D.
Babcock & Wilcox	2	13	22.67	26.66	21.99	25.84
	2½	12	30.48	35.84	29.57	34.78
	3	12	33.90	39.90	32.89	38.70
	3½	11	42.37	49.89	41.10	48.39
	4	10	52.60	61.88	51.03	60.02
National Tube	2	13	21.62	26.48		
	2½	12	29.65	36.32		
	3	12	34.00	41.64		
	3½	11	40.34	49.41		
	4	10	51.21	62.72		
Pittsburgh Steel	2	13		27.08		
	2½	12	30.49	37.15		
	3	12	34.95	42.59		
	3½	11	41.48	50.54		
	4	10	52.65	64.16		

FLUORSPAR

Washed gravel, f.o.b. Rosiclaire, Ill. Price, net ton; Effective CaF_2 content:
70% or more $43.00
60% or less 40.00

CAST IRON WATER PIPE

Per Net Ton

6 to 24-in., del'd Chicago. $105.30 to $108.80
6 to 24-in., del'd N. Y. .... 108.50 to 109.50
6 to 24-in., Birmingham . 91.50 to 96.00

6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less .....$108.50 to $113.00

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Base Col.	Woven Wire Fence 9-15½ ga. Base Col.	Fence Posts Base Col.	Single Loop Bale Ties Base Col.	Twisted Barbless Wire Base Col.	Galv. Barbed Wire Base Col.	Merch. Wire Annld ¢/lb.	Merch. Wire Galv. (1) ¢/lb.
Alabama City-4	118	128	....	123	....	136	5.70	5.95
Aliquippa, Pa.-5	118	132	....	....	136	140	5.70	6.15
Atlanta-65	121	133	....	126	126	143	5.95	6.40
Bartonville-34	118	130	....	123	143	143	5.70	6.15
Buffalo-85	....	....	....	....	....	....	4.85	....
Cleveland-86	125	....	....	....	....	....	....	....
Cleveland-2	....	....	....	....	....	....	5.70	6.15
Crawfordsville-87	....	132	....	....	....	145	5.95	6.40
Donora, Pa.-2	118	130	....	123	140	140	5.70	6.15
Duluth-2	118	130	....	123	14u	140	5.70	6.15
Fairfield, Ala.-11	118	130	....	123	....	140	5.70	6.15
Houston-83	126	138	....	....	....	148	6.10	6.55
Johnstown, Pa.-3	118	130	....	....	140	....	5.70	6.15
Joliet, Ill.2	118	130	....	123	....	140	5.70	6.15
Kokomo, Ind.-30	120	132	....	125	138	142	5.80	6.05
Los Angeles-62	....	....	....	....	....	....	6.65	....
Kansas City-83	130	....	....	135	....	152	6.30	6.75
Minnequa-14	123	138	130	128	146	146	5.95	6.45
Monessen-18	124	135	....	....	....	145	5.95	6.40
Moline, Ill.-4	....	....	138	....	....	....	....	....
Pittsburg, Cal.-24	137	....	....	147	156	160	6.65	6.80
Portsmouth-20	124	137	....	....	147	147	6.10	6.60
Rankin, Pa.-2	118	130	....	....	140	140	5.70	6.15
So. Chicago, Ill.-4	118	126	140	123	....	136	5.70	5.95
S. San Fran.-14	....	....	....	147	....	160	6.65	7.10
Sparrows Pt.-3	120	....	....	125	142	142	5.80	6.25
Sterling, Ill.-33	118	130	....	123	140	140	5.70	6.15
Struthers, Ohio-6	....	....	....	....	....	....	5.70	6.15
Torrance, Cal.-24	138	....	....	....	....	....	6.65	....
Worcester-2	124	....	....	....	....	....	6.00	6.45
Williamsport, Pa.-51	....	....	150	....	....	....	....	....

Cut Nails, carloads, base, $7.35 per 100 lb. (less 20¢ to jobbers) at Conshohocken, Pa., (26). Wheeling, W. Va. (15)., $7.15.

(1) Alabama City and So. Chicago do not include zinc extra.

PIPE AND TUBING

Base discounts, f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD																SEAMLESS					
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½-3 In.		3½-4 In	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
STANDARD T & C.																				
Sparrows Pt.-3	34.0	12.0	37.0	16.0	39.5	19.5	40.0	20.0	40.5	21.0	41.0	21.5	41.5	22.0	....	....	....	....	....	....
Cleveland-4	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Oakland-19	25.0	3.0	28.0	7.0	30.5	10.5	31.0	11.0	31.5	12.0	32.0	12.5	32.5	13.0	....	....	....	....	....	....
Pittsburgh-5	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.5	8.0	32.5	11.5	34.5	13.5
Pittsburgh-10	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
St. Louis-32	35.0	13.0	38.0	17.0	40.5	20.5	41.0	21.0	41.5	22.0	42.0	22.5	42.5	23.0	....	....	....	....	....	....
Sharon-90	36.0	13.0	39.0	17.0	41.5	20.0	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.0	....	....	....	....	....	....
Pittsburgh-88	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	....	32.5	....	34.5	....
Wheeling-15	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Wheatland-89	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
EXTRA STRONG, PLAIN ENDS																				
Sparrows Pt.-3	33.5	13.0	37.5	17.0	39.5	20.5	40.0	21.0	40.5	22.0	41.0	22.5	41.5	23.0	....	....	....	....	....	....
Cleveland-4	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Oakland-19	24.5	4.0	28.5	8.0	30.5	11.5	31.0	12.0	31.5	13.0	32.0	13.5	32.5	14.0	....	....	....	....	....	....
Pittsburgh-5	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.0	7.5	33.0	12.0	36.5	15.5
Pittsburgh-10	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5
St. Louis-32	34.5	14.0	38.5	18.0	40.5	21.5	41.0	22.0	41.5	23.0	42.0	23.5	42.5	24.0	....	....	....	....	....	....
Sharon-90	35.5	14.0	39.5	18.0	41.5	21.0	42.0	21.5	42.5	22.0	43.0	22.5	43.5	23.0	....	....	....	....	....	....
Pittsburgh-88	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	....	33.0	....	36.5	....
Wheeling-15	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Wheatland-89	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5

Galvanized discounts based on zinc at 17¢ per lb. East St. Louis. For each 1¢ change in zinc, discounts vary as follows: ½ in., ¾ in., and 1 in., 1 pt.; 1¼ in., 1½ in., 2 in., ¾ pt.; 2½ in., 3 in., 1½ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb. use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢.

Threads only, buttweld and seamless, 1 pt. higher discount. Plain ends, buttweld and seamless, 3 in. and under, 3½ pts. higher discount. Buttweld jobbers' discount, 5 pct.

WAREHOUSES

Base price, f.o.b., dollars per 100 lb. *(Metropolitan area delivery add 20¢ except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul, add 15¢; Memphis, add 10¢; Philadelphia, add 25¢; New York, add 30¢).

Cities	Sheets			Strip		Plates	Shapes	Bars		Alloy Bars			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled A 4615 As rolled	Hot-Rolled A 4140 Annealed	Cold-Drawn A 4615 As rolled	Cold-Drawn A 4140 Annealed
Baltimore	5.60	6.84	7.49[2] 8.07	6.04	.....	5.80	6.14	6.04	6.84 6.89	10.24	10.54	11.89	12.19
Birmingham*	5.60	6.40	6.75	5.55	.....	5.95	5.70	5.55	.....	.....	.....	.....	.....
Boston	6.20	7.00– 7.25	7.74– 8.29	6.15	8.50[4]	6.48– 6.78	6.20	6.05	6.79– 6.84	10.25	10.55	11.90– 12.00	12.20– 12.30
Buffalo	5.60	6.40	7.74– 8.09	5.86	.....	6.05	5.80	5.60	6.40– 6.45	10.15– 10.85	10.45	11.80	11.95– 12.10
Chicago	5.60	6.40	7.75	5.55	.....	5.80	5.70	5.55	6.30	9.80	10.10	11.45	11.75
Cincinnati*	5.87	6.44	7.39	5.80	.....	6.19	6.09	5.80	6.61	10.15	10.45	11.80	12.10
Cleveland	5.60	6.40	8.10	5.69	6.90	5.92	5.82	5.57	6.40	9.91	10.21	11.56	11.86
Detroit	5.78	6.53	7.89	5.94	.....	5.99	6.09	5.84	6.56	10.11	10.41	11.76	12.06
Houston	7.00	8.25	.....	.....	.....	6.85	6.50	6.65	9.35	10.35	11.25	.....	12.75
Indianapolis, del'd.	6.00	6.80	8.15	5.95	.....	6.20	6.10	5.95	6.80	.....	.....	.....	.....
Kansas City	6.00	6.80	7.45	6.15	7.50	6.40	6.30	6.15	7.00	10.40	10.70	12.05	12.35
Los Angeles	6.35	7.90	8.85	6.40	9.45[6]	6.40	6.35	6.35	8.20	11.30	11.30	13.20	13.50
Memphis*	6.33– 6.38	7.06– 7.18	.....	6.33– 6.38	.....	6.43– 8.02	6.33– 6.48	6.06– 6.33	7.16– 7.32	.....	.....	.....	.....
Milwaukee	5.74	6.54	7.89	5.69– 6.59	.....	5.94	5.84	5.69	6.44– 6.54	9.94	10.24	11.59	11.89
New Orleans*	5.70	6.59	.....	5.75	7.25	5.95	5.75	5.75	7.30	.....	.....	.....	.....
New York*	5.67– 5.97	7.19[5]– 7.24[1]	8.14[2]	6.29– 6.89	8.63[4]	6.28– 6.58	6.10	6.12	6.99	10.05– 10.15	10.35– 10.45	11.70– 11.80	12.10– 12.20
Norfolk	6.50[3]	.....	.....	.....	.....	6.50[3]	6.60[3]	6.55[3]	.....	.....	.....	.....	.....
Philadelphia*	5.90	6.80	8.00	6.10	.....	6.05	5.90	6.05	6.86	9.90	10.20	.....	.....
Pittsburgh	5.60	6.40	7.75	5.65– 5.95	.....	5.75	5.70	5.55	6.15	9.80	10.10	11.45	11.75
Portland	6.60– 7.55	8.95	8.50– 9.10	7.30	.....	6.80	6.95	6.90	.....	.....	12.15	.....	.....
Salt Lake City	7.95	.....	9.70– 10.50[2]	8.70– 8.75	.....	8.05	6.75– 8.30	7.95– 8.65	9.00	.....	.....	.....	.....
San Francisco*	6.65	8.05[2]	8.55– 8.90[2]	6.60	9.45[6]	6.50	6.45	6.45	8.20	11.30	11.30	13.20	13.20– 13.50
Seattle	7.05	8.60	9.20	9.05	.....	6.75	6.65	6.75	9.05	.....	.....	.....	.....
St. Louis	5.80– 5.85	6.65	8.00	5.80	8.00[4]– 8.28	6.13	6.03	5.80	6.55– 6.65	10.05	10.35	11.70	12.00
St. Paul*	6.16	6.96	8.31	6.11	.....	6.36	6.26	6.11	6.96	10.36	10.66	12.01	12.31

BASE QUANTITIES (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets, for quantity.
EXCEPTIONS: (1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 400 to 1999 lb; (4) 6000 lb and over; (5) 1500 to 9999 lb; (6) 2000 to 5999 lb.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Blast Furnace Silvery	Low Phos. Charcoal
Bethlehem-3	54.00	54.50	55.00	55.50	.....	.....	.....
Birmingham-4	48.38	48.88	.....	.....	.....	.....	.....
Birmingham-91	48.38	48.88	.....	.....	.....	.....	.....
Birmingham-92	48.38	48.88	.....	.....	.....	.....	.....
Buffalo-4	52.00	52.50	53.00	.....	.....	.....	.....
Buffalo-93	52.00	52.50	53.00	.....	.....	63.75	.....
Chicago-94	52.00	52.50	52.50	53.00	.....	.....	.....
Cleveland-2	52.00	52.50	52.50	53.00	57.00	.....	.....
Cleveland-4	52.00	52.50	52.50	.....	.....	.....	.....
Daingerfield, Tex.-95	48.00	48.50	48.50	.....	.....	.....	.....
Duluth-94	52.00	52.50	52.50	53.00	.....	.....	.....
Erie-94	52.00	52.50	52.50	53.00	.....	.....	.....
Everett, Mass.-96	.....	51.75	52.25	.....	.....	.....	.....
Fontana-19	58.00	58.50	.....	.....	.....	.....	.....
Geneva, Utah-16	52.00	52.50	52.50	53.00	.....	.....	.....
Granite City, Ill.-102	53.90	54.40	54.90	.....	.....	.....	.....
Hubbard, Ohio-6	52.00	52.50	52.50	.....	.....	.....	.....
Ironton, Utah-16	52.00	52.50	.....	.....	.....	.....	.....
Jackson, Ohio-97, 98	.....	.....	.....	.....	.....	62.50	.....
Lyle, Tenn.-101	.....	.....	.....	.....	.....	.....	66.00
Monessen-18	54.00	.....	.....	.....	.....	.....	.....
Neville Island-99	52.00	52.50	52.50	53.00	.....	.....	.....
Pittsburgh-1	52.00	.....	.....	53.00	.....	.....	.....
Sharpsville-100	52.00	52.50	52.50	53.00	.....	.....	.....
Steelton-3	54.00	54.50	55.00	55.50	60.00	.....	.....
Swedeland-26	56.00	56.50	57.00	57.50	.....	.....	.....
Toledo-94	52.00	52.50	52.50	53.00	.....	.....	.....
Troy, N. Y.-4	54.00	54.50	55.00	.....	60.00	.....	.....
Youngstown-6	52.00	52.50	52.50	53.00	.....	.....	.....

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct), 50¢ per ton for each 0.50 pct manganese over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus content over 0.70 pct. Silvery iron: Add $1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. $1 per ton for 0.75 pct or more phosphorus, manganese as above. Bessemer ferrosilicon prices are $1 over comparable silvery iron.

REFRACTORIES

Fire Clay Brick *(F.o.b. works) Carloads, Per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5) $94.60
No. 1 Ohio 88.00
Sec. quality, Pa., Md., Ky., Mo., Ill. 88.00
No. 2 Ohio 79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50) 13.75

Silica Brick

Mt. Union, Pa., Ensley, Ala. $94.60
Childs, Pa. 99.00
Hays, Pa. 100.10
Chicago District 104.50
Western Utah and Calif. 111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago 111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.) 16.50
Silica cement, net ton, bulk, Hays, Pa. 18.70
Silica cement, net ton, bulk, Ensley, Ala. 17.60
Silica cement, net ton, bulk, Chicago District 17.60
Silica cement, net ton, bulk, Utah and Calif. 24.70

Chrome Brick *Per Net Ton*

Standard chemically bonded, Balt., Chester $82.00

Magnesite Brick

Standard, Baltimore $104.00
Chemically bonded, Baltimore 93.00

Grain Magnesite *St. %-in. grains*

Domestic, f.o.b. Baltimore, in bulk fines removed $62.70
Domestic, f.o.b. Chewelah, Wash., in bulk 36.30
in sacks 41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢ $13.00

COKE

Furnace, beehive (f.o.b. oven) Net Ton
Connellsville, Pa. ..... $14.50 to $15.00
Foundry, beehive (f.o.b. oven)
Connellsville, Pa. ..... $17.50 to $18.00
Foundry, oven coke
Buffalo, del'd $26.69
Chicago, f.o.b. 23.00
Detroit, f.o.b. 24.00
New England, del'd 24.80
Seaboard, N. J., f.o.b. 22.75
Philadelphia, f.o.b. 22.70
Swedeland, Pa., f.o.b. 22.60
Painesville, Ohio, f.o.b. 24.00
Erie, Pa., f.o.b. 23.50
Cleveland, del'd 25.72
Cincinnati, del'd 25.06
St. Paul, f.o.b. 22.50
St. Louis 25.40
Birmingham, del'd 21.69
Neville Island 23.00

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports) Per gross ton

Old range, bessemer $8.70
Old range, nonbessemer 8.55
Mesabi, bessemer 8.45
Mesabi, nonbessemer 8.30
High phosphorus 8.30

After adjustments for analyses, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.

C-R SPRING STEEL

F.o.b. Mill Cents Per Lb.	CARBON CONTENT				
	0.26–0.40	0.41–0.60	0.61–0.80	0.81–1.05	1.06–1.35
Bridgeport, Conn.-58	5.35	6.80	7.40	9.35	11.65
Carnegie, Pa.-41	.....	6.80	7.40	9.35	11.65
Cleveland-2	4.65	6.45	7.40	9.35	11.65
Detroit-68	5.60	6.65	7.25	.....	.....
New Castle, Pa.-40	5.35	6.80	7.40	9.35	.....
New Haven, Conn.-68	5.85	6.75	7.35	.....	.....
Sharon, Pa.-13	5.35	6.80	7.40	9.35	11.65
Weirton, W. Va.-9	5.35	6.80	7.40	9.35	11.65
Worcester, Mass.-2	4.95	6.75	7.70	9.65	11.65
Youngstown-48	.....	6.80	7.40	9.35	11.65

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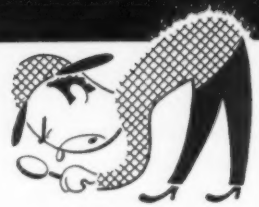

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JAN-P-131, Amendment 3, Type I
Classes A and B

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BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Machine and Carriage Bolts

	Pct Off List Less Case	C.
½ in. & smaller x 6 in. & shorter	15	28½
9/16 in. & ⅝ in. x 6 in. & shorter	18½	30½
¾ in. & larger x 6 in. & shorter	17½	29½
All diam. longer than 6 in...	14	27½
Lag, all diam. x 6 in. & shorter	23	35
Lag, all diam. longer than 6 in.	21	33
Plow bolts	34	....

Nuts, Hot Pressed, Cold Punched—Sq

	Pct Off List Less Keg (Reg.)	K.	Less Keg (Hvy.)	K.
½ in. & smaller.	15	28½	15	28½
9/16. in. & ⅝ in..	12	25	6½	21
¾ in. to 1½ in. inclusive	9	23	1	16½
1⅝ in. & larger.	7½	22	1	16½

Nuts, Hot Pressed—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	16½	29½	6½	21
¾ in. to 1½ in. inclusive	12	25	2	17½
1⅝ in. & larger.	8½	23	2	17½

Nuts, Cold Punched—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	23	35	17½	30½
¾ in. to 1½ in. inclusive	19½	31½	12	25
1⅝ in. & larger.	12	25	6½	21

Nuts, Semi-Finished—Hexagon

	Reg.		Hvy.	
½ in. & smaller.	35	45	28½	39½
9/16 in. & ⅝ in..	29½	40½	22	34
¾ in. to 1½ in. inclusive	24	36	15	28½
1⅝ in. & larger.	13	26	8½	23
	Light			
7/16 in. & smaller	35	45		
½ in. thru ⅝ in.	28½	39½		
¾ in. to 1½ in. inclusive	26	37		

Stove Bolts — *Pct Off List*

Packaged, steel, plain finished 48—10
Packaged, plated finish ..... 31—10
Bulk, plain finish**..... 67*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets — *Base per 100 lb.*

½ in. & larger..... $7.85

Pct Off List

7/16 in. & smaller..... 36

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.

Cap and Set Screws

(In bulk) — *Pct Off List*

Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright.....	54
¾ in. thru 1 in. up to & including 6 in.	48
¼ in. thru ⅝ in. x 6 in. & shorter high C double heat treat.....	46
¾ in. thru 1 in. up to & including 6 in.	41
Milled studs	35
Flat head cap screws, listed sizes....	16
Fillister head cap, listed sizes.....	34
Set screws, sq head, cup point, 1 in. diam and smaller x 6 in. & shorter	53

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots.....	25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots.....	31.85

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Engineers . . . Designers . . . Superintendents . . .

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ELECTRODES

Cents per lb., f.o.b. plant threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
	GRAPHITE	
17, 18, 20	60, 72	17.85
8 to 16	48, 60, 72	17.85
7	48, 60	19.57
6	48, 60	20.95
4, 5	40	21.50
3	40	22.61
2½	24, 30	23.15
2	24, 30	25.36
	CARBON	
40	100, 110	8.03
35	65, 110	8.03
30	65, 84, 110	8.03
24	72 to 104	8.03
20	84, 90	8.03
17	60, 72	8.03
14	60, 72	8.57
10, 12	60	8.84
8	60	9.10

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct.		
Coatesville, Pa. (21)	*29.5	
Washgtn, Pa. (39)	*29.5	
Claymont, Del. (29)	*28.00	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)	*26.50	*25.50
Nickel-carbon		
10 pct Coatesville (21)	32.5	
Inconel-carbon		
10 pct Coatesville (21)	40.5	
Monel-carbon		
10 pct Coatesville (21)	33.5	
No. 302 Stainless-copper stainless, Carnegie, Pa. (60)		77.00
Aluminized steel sheets, hot dip, Butler, Pa. (7)		7.75

*Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.235
18	4	1	—	5	$1.36
18	4	2	—	—	$1.38
1.5	4	1.5	8	—	78.5¢
6	4	2	6	—	87¢

High-carbon chromium	63.5¢
Oil hardened manganese	35¢
Special carbon	32.5¢
Extra carbon	27¢
Regular carbon	23¢

Warehouse prices on and east of Mississippi are 3¢ per lb higher. West of Mississippi, 5¢ higher.

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags	7.4¢ to 9.0¢
Canadian sponge iron, del'd, In East	10.00¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	36.0¢ to 39.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe.	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	83.0¢ to $1.48
Aluminum	29.00¢
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic	10.75¢ plus metal value
Copper, reduced	10.00¢ plus metal value
Cadmium, 100-199 lb.	95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity	$3.50
Lead	7.5¢ to 12.0¢ plus metal value
Manganese	52.00¢
Molybdenum, 99%	$2.65
Nickel, unannealed	88.0¢
Nickel, annealed	95.0¢
Nickel, spherical, unannealed	92.0¢
Silicon	38.5¢
Solder powder	6.5¢ to 8.5¢ plus met. value
Stainless steel, 302	83.00¢
Stainless steel, 316	$1.10
Tin	14.00¢ plus metal value
Tungsten, 99%	$4.15
Zinc, 10 ton lots	23.0¢ to 30.5¢

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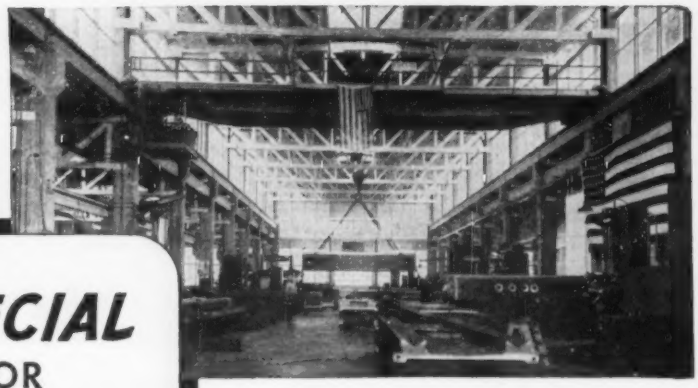

SPECIAL OR GENERAL PURPOSE USE

• Standard Euclid Cranes are available in capacities of 3, 5, 7-1/2, 10, 15, 20 and 25 tons in various spans. Over 90% of your material handling requirements can be met with standard Euclids, whether they are put to Special or General Purpose use.

Euclid Crane construction embodies high grade, wide face, coarse pitch gearing throughout with extra strength shafts and anti-friction bearings to assure longer life and lower power consumption.

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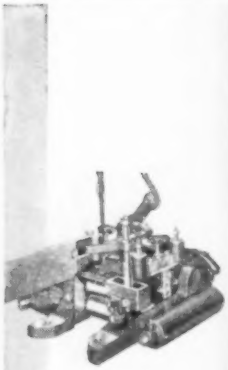

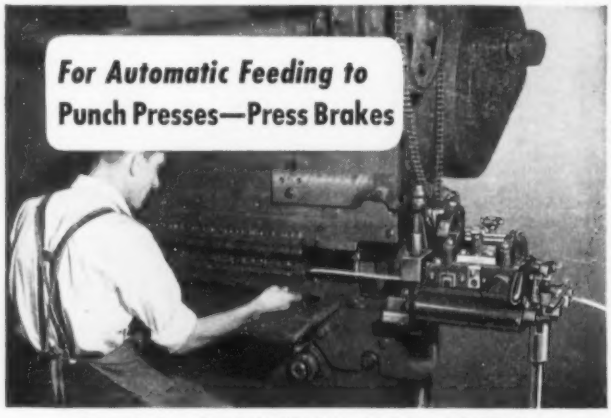

A press brake equipped with Wittek No. 6-L Automatic Roll Feed

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Wittek Roll Feeds are made in standard models to meet every requirement in the automatic feeding of strip stock to punch presses or press brakes. The distinguishing feature is their simple and economical method of operation which does away with complicated parts thereby assuring *speed* and *accuracy* in the feeding of various kinds and thicknesses of material.

Wittek Adjustable Reel Stands are designed as companion units to Wittek Automatic Roll Feeds and are available in seven different models to handle *ALL* types of coiled strip stock and wire being fed to punch presses or similar production machinery.

Special units of Wittek Automatic Roll Feeds and Adjustable Reel Stands are engineered to meet unusual requirements.

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Automatic ROLL FEEDS AND REEL STANDS

ELECTRICAL SHEETS

22 Ga. H-R cut lengths

F.o.b. Mill Cents Per Lb.	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
Beech-Bottom-15	....	7.25	8.50	9.30	9.85	10.40	11.10
Brackenridge-28	....	7.25	8.50	9.30	9.85	....	....
Follansbee-63	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Granite City-22	....	7.95	9.20	....	....	....	....
Ind. Harbor-3	6.75	7.25	....	....	....	....	....
Mansfield-75	7.25	7.75	9.00	9.80	....	....	....
Niles, O.-64	7.05	7.55	....	....	....	....	....
Vandergrift-1	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Warren, O.-4	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Zanesville-7	6.75	7.25	8.50	9.30	9.85	10.40	11.10

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si.)

0.06% C	30.50	0.20% C	29.50
0.10% C	30.00	0.50% C	29.25
0.15% C	29.75	1.00% C	29.00
2.00% C			28.75
65-69% Cr, 4-9% C			22.00
62-66% Cr, 4-6% C, 6-9% Si.			22.85

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% max. C	$1.09
0.50% max. C	1.05
.00 min. C	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 21.75¢ per lb of contained Cr plus 12.00¢ per lb of contained Si.

Bulk 1-in. x down, 21.90¢ per lb contained Cr plus 12.20¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, dump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	19.00
Ton lots	22.10
Less ton lots	23.00

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	20.0¢
Ton lots	22.30
Less ton lots	23.30

CMSZ

Contract price, cents per lb of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

Ton lots	20.75
Less ton lots	22.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50¢
Less ton lots	17.75¢

Graphidox No. 4

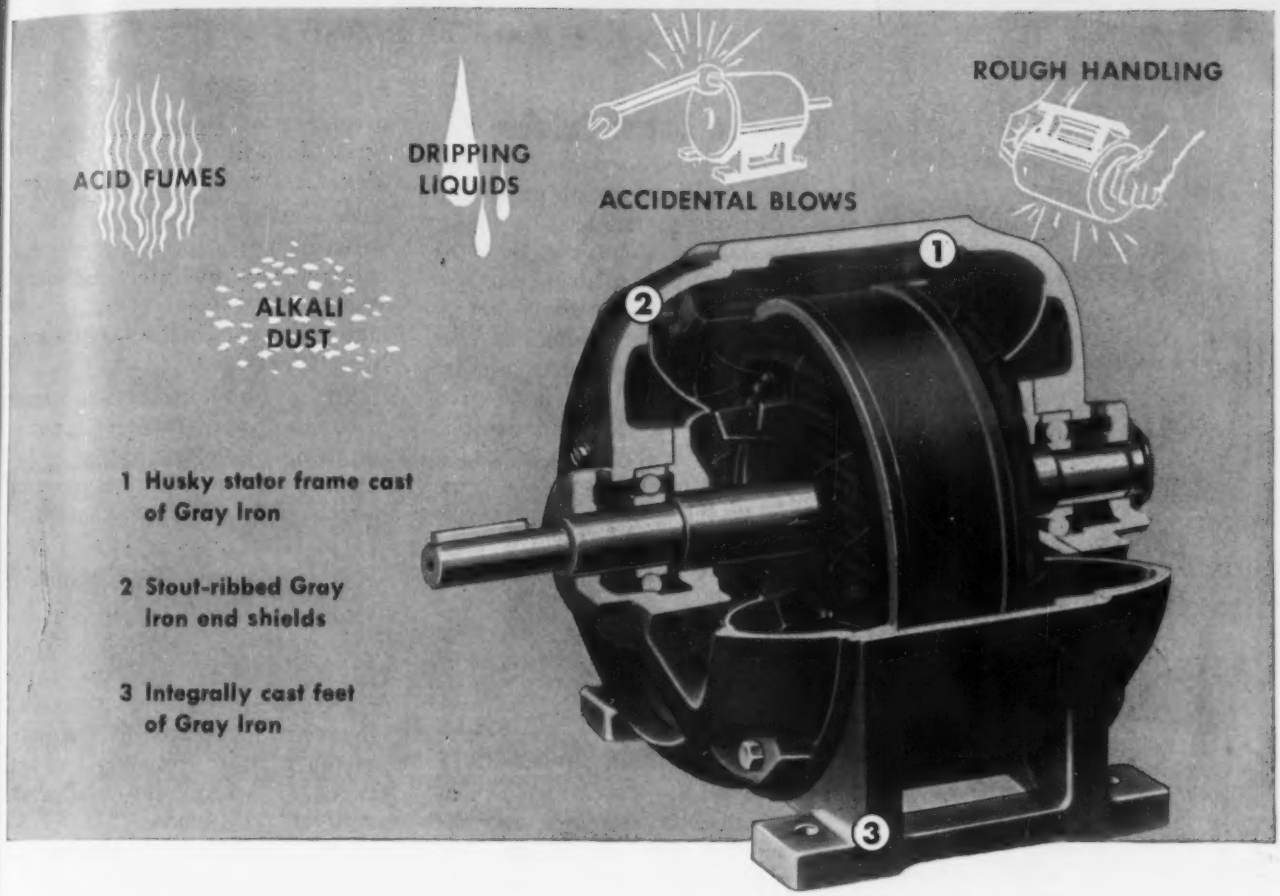
Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	18.00¢
Ton lots to carload packed	19.00¢
Less ton lots	20.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50



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- Rigidity which insures permanent shaft alignment.
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Why not take a tip from leading manufacturers and specify Gray Iron where your product must stand up under rough usage? Whether it's corrosion, abrasion, heat or vibration . . . Gray Iron can take it!

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Chrome on Zinc or Cadmium

Cleveland—A new process for putting a chrome finish on a zinc or cadmium plated base is being licensed to manufacturers by Wire Coating & Manufacturing Co.

The process is electrolytic and can be used on magnesium or zinc die castings or on aluminum or steel parts. First step is to give the piece a bright zinc coat, a wash, a chemical dip, then a chrome plating. Key to the process is in the chemical dip, which instead of stripping off the zinc, prepares it for the chrome. A coating of clear lacquer over the chrome plate makes it almost as durable as the standard products of copper and nickel.

Urges Maintenance of Inventory

Rome, N. Y.—The slice-down of inventories by retailers may be carried too far because the real mass of defense production is yet to come, said J. M. Kennedy, vice-president of Revere Copper and Brass, Inc., in charge of the Rome Mfg. Co. Div.

He warned that firms with large defense orders are mainly in the stage of installing tools and equipment and are not ordering raw materials yet. Thus scarcities may hit suddenly.

"In our judgment, maintenance of substantial inventories of popular items employing scarce or potentially scarce materials is sound business policy," he concluded.

Steel Employment Sets Record

New York—February steel employment hit a new high of 662,700, well over the war time record of 658,600 set in June 1942. Employment increased 50,000 over February 1950. Hourly wages averaged $1.916 and the work week averaged 40.4 hours. Total February payroll was estimated at $219,412,000, according to American Iron & Steel Institute.

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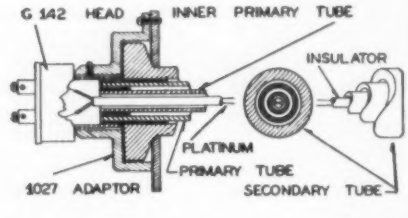
The porcelain insulation and protecting tubes which go into a complete thermocouple assembly are of the finest quality obtainable. They are the best known means of preventing contamination of the elements which result in false e.m.f. values. Also, the Gordon G-142 head which goes



into a complete thermocouple assembly is light in weight and permits easy replacement of new elements into a protecting tube assembly.

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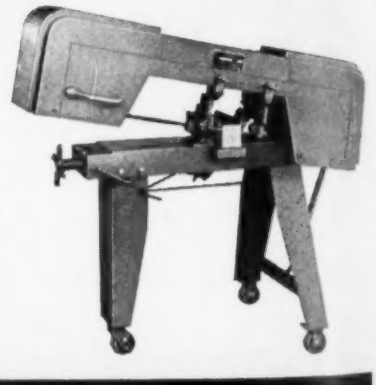

The adaptability and flexibility of Johnson Band Saws in handling all types of cutting is almost unlimited. Rods, tubes, angles, heavy rounds or flats and irregular shapes all can be cut quickly and economically . . . Model B Saw, pictured, offers the high speed and accuracy of a much larger machine. Capacity, 5″ rounds and 10″ flats; makes a handy saw for large or small shops; with or without casters. Also, Model J, for 10″ rounds, 18″ flats.

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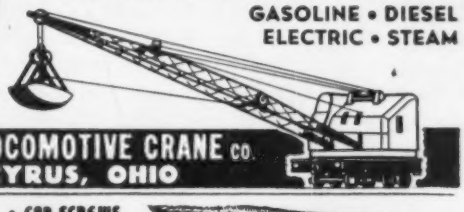

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Babcock & Wilcox Size E32, Class 221-BA Pulverizer. Complete with Table Feeder, Pulverizer Fan, Elecl. Equipt. Capable of grinding 7525 lbs. coal per hr.

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NEWS OF USED, REBUILT AND SURPLUS MACHINERY

"Cocoon" Storage—Details of a "cocoon" method to store equipment and machine tools, on the pattern of the Navy mothballing practice described in this column on Apr. 15, 1951, were outlined by The DeVilbiss Co., Toledo, Ohio, spray equipment manufacturers.

Citing the armed forces' storing methods as highly satisfactory, R. A. Guyer, vice-president, said that spraying a weather-tight coating is a low-cost, easy method of protecting against rust and other atmospheric wear.

Four Steps—Mr. Guyer recommends: (1) placing cloth tapes over equipment to form a latticework framework; (2) spraying a webbing material between tapes; (3) spraying a sealing material over the webbing, and (4) inserting silica gel to absorb moisture.

Since the silica gel container will need replenishment, a window can be slit into the cocoon.

Some Machines Unneeded—Although some manufacturers are still saying they "haven't seen any," subcontracts for defense goods are filtering down increasingly. When a firm does get a defense contract, it may discover that some of its machines are not fitted for the new job. In a good many cases companies find it imperative to accept defense work because they can't get enough materials to work at capacity on civilian products.

A new subcontractor lacking tools will try to get used equipment but he may have "civilian" equipment he cannot use. What he does with the latter is important.

To Hold or Not—Should he decide to hold on to it for a return to civilian business he will deprive the used machinery field of its due. He is taking out but not putting anything back.

Dealers should be on the watchout for the new defense subcontractor. They should be willing to help him out with his new needs. In doing so they should point out his now excess machines may be turned to defense by someone else. Also that prices of used equipment are high enough today so that he need not worry about getting back similar machines later at a cost advantage.

More to Come—The used machinery business in Chicago is thriving but it has not yet attained the heights reported in other centers where defense production has settled more heavily. Prime contracts in this area are being filled from government reserves and new equipment to a great extent. Subcontracts have not yet been let in a great enough volume to bring intense competition.

Buyers still can shop around. Late type equipment is in high demand but not much of it is available. Dealers who can locate the late stuff sell it quickly. Auction prices still are sky-high for dealers and plants holding surplus equipment hang on, waiting for that top dollar.

Near New Price—Late type production equipment is bringing close to the new price in Chicago. Tool room equipment is less in demand but is moving at a fair to moderate pace. The older machines are not eagerly sought.

Sales of used resistance welders have picked up for those machines of 50kva or over, slipping into aircraft production. Prices are generally running 75 pct of the new cost, dependent on age and condition of machines. Demand for welders under 50kva has fallen because small sheet metal shops have a problem in getting enough cold-rolled sheets. Used electric motors are in good supply but demand is rising.